Croonian Lectures
ON
THE PULSE.

Delivered at the Royal College of Physicians of London, March, 1887.

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LECTURE I.

MR. PRESIDENT AND GENTLEMEN,—The subject I have chosen for the lectures which I have the honour to deliver before you, if it is to be judged of by its importance to the medical man, is well worthy of the attention of the College. It is to the pulse that we look first of all for trustworthy information as to the condition of the patient who seeks our aid, and the knowledge obtained from it is a sort of foundation upon which is built up the opinion we form from the collective symptoms he exhibits and from the results of our physical examination. On the other hand, since the pulse has been the object of attentive examination on the part of every physician here, from the first moment of his entering upon the study of medicine up to the present time, and by countless generations of physicians from the time of Galen onwards, it may appear to be an act of presumption on my part to bring before the College a subject with which every Fellow is equally familiar with myself. I might reply to this that there has been a great reawakening of interest in the pulse; that new methods of study and of investigation have been brought to bear upon it; that greater precision has been introduced into the descriptive terminology of its variations. But the justification I would plead is simply this, that I have myself learnt much, and still find that I have much to learn, with regard to the pulse, with regard to the significance of the changes observed in it, and especially with regard to the indications for treatment to be obtained from it.

We examine habitually the pulse at the wrist, and at first sight it seems strange that the radial artery, which supplies merely the structures of a part of the hand, a few small bones with their articulations, a few muscles and tendons, the skin and the nerves distributed to it, should afford the varied and far-reaching knowledge we look for in the pulse. The hand is not essential to life; it contains no organ of any importance, and *a priori* it might have been supposed that the variations in the circulation of the blood in so small a member could have no significance. We know as a matter of observation, however, that the pulse of the wrist indicates the condition of the circulation generally, and on reflection it is seen that, as a branch of the great arterial system, it receives every impulse starting from the heart, and reveals the frequency and force of its beats; and not only this, but as fluid pressure is equal, or tends to become equal in all parts of a freely communicating system of tubes, it shows the degree of freedom of the general outflow through the capillaries as well as the kind of propulsion by the heart. The very fact that the hand has no special circulation of its own liable to extreme variations for functional purposes, such as, for example, those which occur in the salivary glands, makes the radial pulse a more trustworthy index of the general circulation.

A preliminary question, upon which a distinct understanding must be arrived at, is the following: The pulse, what is it; and what is the exact information it furnishes? Now, it is not, as is commonly understood, and as is explicitly stated in text-books of physiology, much read by our students, an expansion of the artery. This, at any rate, is not what we feel or what is recorded by the sphygmograph. A moment's reflection as to the volume of blood discharged by the left ventricle into the aorta, and a comparison of this with the capacity of the entire arterial system, will convince us that it is altogether inadequate to produce any expansion of the smaller arteries appreciable to the touch. The aorta and its primary branches are, it is true, dilated somewhat by the injected blood, but even in a vessel the size of the carotid it is difficult to measure the increase of diameter, so minute is it; whereas in the radial, in which it must be much less, the sphygmograph, if its trace were taken to indicate actual enlargement of the artery, would show it to be considerable. Nor is the pulse a sinuous movement of the artery in its bed from elongation, which throws it into curves. To feel the pulsation in an artery, or to take a sphygmographic trace, a certain degree of pressure must be applied to the vessel, and, as is well known, there must be a bone behind it against which it can be compressed. What happens, then, is as follows: in the intervals between the pulsations, when the resistance by the contained blood is at its lowest, the tube of the artery is more or less flattened; then comes the so-called wave of blood propelled by the systole of the left ventricle, or, to speak more accurately, the liquid pressure in the vessel is increased, and this forces the artery back into the circular form. It is this change of shape from the flattened condition impressed upon the vessel by the finger, or by the sphygmographic lever, to the round cylindrical shape which it assumes under the distending force of the blood within it which constitutes for us the pulse. Such a pulsation can be felt on a large scale by placing the foot on the unyielding and unelastic leather hose of a fire-engine in action, or shown in a scheme of the circulation with inelastic vessels. It is not, then, an increase in the diameter of the vessel, but an increase of the blood-pressure within it, created by the systole of the ventricle of the heart, which constitutes the pulse.

Another common misconception must be cleared up—namely, that the pulse signifies onward movement of the blood in the artery. Since a certain amount of blood is propelled into the aorta at each systole, it would seem, at first sight, that there must be a corresponding propulsion of blood along the vessel which is under the finger, and misapprehension has been carried so far that the pulse wave has been understood to mean the actual transport of the blood, and even to indicate the rapidity of such motion. Short of this, it is more commonly taken for granted that the rate of movement of the blood in the vessels is directly proportionate to the strength of the pulse—that a good strong pulse implies a vigorous rush through the capillaries, and a weak pulse a languid flow. The stream from a divided artery and the pulsatile jet seem to countenance this conclusion. It is, however, an erroneous idea; if the radial is compressed close to the hand, the pulsation above is not extinguished, but exaggerated, and when an artery is tied the pulsation up to the ligatured point is more vehement than before. Pulsation is thus no evidence of onward movement of the blood, and resistance in the arteries and capillaries will have *pro tanto* the effect of a ligature, hindering or even arresting the onward current; and there can be no doubt that peripheral obstruction does at times reach a point which almost stops the flow from the arteries to the veins, the pulse appearing to be all the stronger on this account; in fact, we infer the existence of obstruction in the cerebral circulation from the exaggerated carotid beat on that side. This is a consideration which, it seems to me, is not adequately borne in mind. I think it enters into the explanation of dropsy, and especially of the varying amount of dropsical effusion under apparently similar conditions, and that it also helps to clear up obscurities in the relation between circulatory conditions and head symptoms.

The pulse, then, indicates simply the degree and duration of increased pressure in the arterial system caused by the ventricular systole. There is a certain mean blood-pressure maintained by the elasticity of the large arteries, varying greatly in different individuals, which keeps up the flow through the capillaries, and the level of which is determined by the resistance in the capillaries and the amount of force stored up by the elastic walls of the large arteries. This pressure is lowered by the outflow through the capillaries into the veins, and is reinforced by the successive contractions of the left ventricle and the pulse marks, and indicates the minimum and the maximum pressures, with the gradation from one to the other. The term "tension," as applied to the pulse, means simply the degree of fluid pressure within the artery, putting its walls on the stretch. Distension might, perhaps, be more expressive than tension, if less exact and technical. With these preliminary observations we may proceed to consider the factors of the pulse.

There are three factors in the production of the pulse, and the influence of each on the variations observed in it must be understood. I shall not enter upon them minutely here.

but certain observations are necessary to a full comprehension of the effects which will be studied later. The three factors are—1. The action of the heart. 2. The elasticity of the great vessels. 3. The resistance in the arteries and capillaries. The heart determines unconditionally the frequency and regularity or irregularity of the pulse, and, with certain qualifications, its force or strength. The great vessels, acting as an elastic reservoir, convert the intermittent jet issuing from the ventricle into a more or less continuous stream, impressing at the same time certain characters upon the pulse, according as the elasticity of their walls is perfect or impaired, and according as they are kept fully distended or only slightly on the stretch. The capillaries and arterioles, by the varying resistance which they offer to the passage of blood through them, determine the character of the pulse, and influence materially the action of the heart. Each of these must be considered in some detail.

It has just been said that the heart determines absolutely the frequency of the pulse; and this is true, in so far that the number of beats of the pulse corresponds with the number of the heart-beats, except when a certain proportion of the latter are too weak to reach the wrist, or when very little blood enters the ventricle during its diastole; with the exception, again, of that curious modification of the heart's action, in which there are two heart-beats coupled together for every beat of the pulse. It must not be lost sight of, however, that resistance in the peripheral circulation reacts upon the rate of the heart's action, as well as upon its character, the frequency being increased as resistance is lessened, and *vice versâ*, subject, however, in both cases to the intervention of the nervous system. The rhythm as well as the rate of the pulse is determined by the heart, and the pulse, generally speaking, is regular or irregular, according as the action of the heart is regular or irregular. The pulse, however, may be made irregular, when the heart is acting regularly, by beats failing to reach the wrist, and irregularity of the heart's action may be greatly exaggerated in the pulse.

With regard to the strength or force of the pulse, again, this must be directly dependent upon the strength of the ventricular systole. The pulse cannot be strong or forcible when the heart's action is weak, and it will not, as a rule, be weak when the heart's action is vigorous. But the volume of blood discharged by the ventricle into the aorta is another element in the production of the pulse. If from any cause the ventricle is not properly filled, as may be the case when there is obstruction in the pulmonary circulation, or when the mitral orifice is greatly narrowed, or when the ventricle has not time to dilate, as may happen in palpitation, the systole will have little effect in increasing the pressure in the arterial system; and there may, under such circumstances, be powerful action of the heart with a feeble pulse. As will be seen, however, when the influence of peripheral resistance is discussed, the apparent strength of the pulse may not correspond with the energy of the ventricular contraction, even when the amount of blood propelled is normal, and tension, or the degree of distension of the arteries while it is maintained by the heart and is dependent upon the pressure supplied by the ventricular systole, is by no means proportionate to its vigour.

The principal effect of the large arteries is to act as an elastic reservoir, which converts the intermittent jet of blood which issues from the ventricle into a continuous stream. They are kept in a state of continual distension, which is increased momentarily by each ventricular systole, and runs down to some extent in the intervals, but never during life, to a point at which the elastic coats of the vessel cease to exercise some compression on its contained blood. The force of the heart is thus stored up and delivered out gradually in the form of a steady pressure, which keeps up an almost uniform flow through the vessels of the periphery. The regular current of blood sustained in this way is essential to the functional efficiency of the central nervous system.

But the elasticity of the great vessels is concerned in the production of the dicrotism of the pulse. The conditions favourable to its manifestation are low tension in the arteries and sharp contraction of the heart. When the outflow by the capillaries is rapid, the pressure in the aorta and great vessels will run down speedily during the cardiac diastole, and there will be a great and sudden rise with the systole. There being, moreover, comparatively little resistance to the blood entering the aorta from the ventricle, its systole takes place rapidly. The force of the systole is divided; there is, at the same time, a launching forwards of the column of blood, and an expansion of the great vessels laterally, their elastic coats not being on the stretch, and so yielding easily. A rebound follows, which starts along the arteries the dicrotic wave from the closed semilunar valves. When, on the other hand, the onward movement of the blood in the periphery is obstructed, the pressure in the great vessels cannot reduce itself, the aorta is distended and its coats are on the stretch, there is little room for the contents of the ventricle, and the exact converse of the effects above enumerated will hold. There will, in particular, be little or no dicrotic wave. In proportion as the distension is extreme, the condition obtaining in the arteries will resemble those which would be present in a system of inelastic tubes. When, from atheromatous or other senile changes, the aorta and its primary branches have lost their elasticity, the resemblance to a system of inelastic tubes is more complete, and the pulse curve not being modified resembles that of the ventricle.

Not less important than the action of the heart in its influence on the circulation of the blood, and even more important in the modifications it produces in the character of the pulse, is the resistance in the arterioles and capillaries. It is by their resistance in front and the force of the heart's action behind that the mean pressure in the arterial system is determined. If the outflow through the capillaries is free, then no amount of blood which the heart in a normal condition can pour into the arteries, and no degree of energy with which this is projected into the aorta, will maintain the general arterial pressure at a high point. It is possible that great frequency of the heart's action, with the discharge of a full volume of blood by each systole, may pour blood into the arteries more quickly than it can run off by the capillaries even when relaxed, in which case the pressure would rise; but this is a rare occurrence, except for brief periods in excitement or the early stage of effort. On the other hand, when the passage through the capillary network is obstructed, the blood is dammed back in the arteries, and the pressure within them is raised, it being understood always that the heart is capable of supplying the requisite force, which must, of course, be sufficient to overcome the peripheral obstruction and keep up some onward movement of the blood, or life would cease. This average or mean tension present is a most important part of the knowledge to be obtained from the pulse; it is measured by the degree of fulness and resistance in the artery between the beats; the variations in the character of the pulse contributing to an accurate estimate of it. It follows from theoretical considerations which need not be here discussed, and it is proved both by observation and experiment, that the higher the constant or mean pressure in the arteries, the less is the difference between the maximum and minimum; or, in other words, the more full and firm the artery is between the beat, the less marked will be the pulse, and, *vice versâ*, the lower the tension and the more conspicuous the pulsation. The significance, again, of the constant or mean and the variable or pulsatile pressure is different. The mean pressure tells most with regard to circulation and the circulatory system. The variable pressure or pulse tells most with regard to the general state of the individual. These variations in the pulse, and the way in which they are produced by changes in the arteries and capillaries, must now be considered.

When the peripheral vessels oppose little resistance to the passage of the blood through them, the pressure in the arteries will not only be low, but it will also be variable. It will rapidly run down in the intervals of the ventricular systole and rise suddenly with each systole. This would be the case even were the rapidity of the individual contraction constant, and uninfluenced by the amount of force to be overcome; such, however, is not the case, for with diminished resistance the ventricle expels its contents more rapidly. The pulse, then, will be more sudden or sharp, and will seem to be more vehement. The artery at the wrist and elsewhere will allow itself to be flattened more easily and completely, as there is little pressure of blood within it to resist the external pressure; it is then suddenly distended and resumes its cylindrical form, repelling the finger and jerking up the sphygmographic lever. This effect is all the more marked from the fact that the walls of the artery will be relaxed and its diameter increased.

The converse effect will be produced by peripheral resistance. With a higher mean pressure the variations will be

less, and the rise of pressure, which constitutes the pulse, more gradual, this difference being accentuated when the artery is contracted. But another consequence flows from the varying resistance in the peripheral arterioles and capillaries. A given volume of liquid will pass more rapidly through a large channel than through a smaller under the same pressure. When, then, the resistance in the periphery is weak—which is equivalent to the channel being larger—the pulse will be short; that is, the wave is sudden and soon over, and, conversely, it will be long when the resistance is considerable. It is easy to confound the fulness of the artery between the beats with a prolonged beat; but, although these two conditions are often met with together, they are distinct, and must be kept so in our minds.

The sphygmograph has been invaluable in research; it has given precision to our ideas, and, in the hands of Marey and others, has made clear and comprehensible many intricate and doubtful problems of the circulation. It is capable, too, of rendering important aid in clinical investigation, especially where demonstration and records of changes in the circulation are required. To me personally the sphygmograph has been of immense service. I worked with it under the eye of Sibson, and shared Anstie's enthusiasm with regard to it when he and Professor Burdon Sanderson took up the instrument with which Marey endowed medical science. It is not, therefore, from ignorance of or want of familiarity with the sphygmograph that I have come to the conclusion that it is not specially useful in practice—that in any form known to me it is not a clinical instrument for every-day work. It is rarely necessary for diagnosis, and scarcely ever to be trusted in prognosis. The indications obtained from it are not, like those of the thermometer, independent of the observer. Skill and practice are required in applying it, judgment is called for in determining the position and pressure which give the best trace, and, indeed, in deciding which of the traces obtainable is the best representative of the particular pulse; the personal equation of the observer therefore comes in, and if any special result is greatly desired, an enthusiastic investigator can obtain it, and may without the least conscious intention twist facts in the required direction. It is necessary, also, before a trace can be interpreted with any degree of confidence, to know what form of sphygmograph has been employed. Marey's is still, in my opinion, the best, and his traces appear to me to correspond most closely with traces taken without instrumental multiplication and magnified by the lens. English modifications of Marey's sphygmograph often magnify the pulsation too much, and in doing so introduce exaggerations due to the rapid movement of the writing lever. Pond's and Dudgeon's instruments are extremely handy and convenient, but a gratuitous provision for exaggerations and for extraneous jerks and vibrations exists in the loose and unmechanical way in which the motion of the intermediate lever is communicated to the writing lever and in the weight which acts as counterpoise in the last-named lever.

The pretence, again, to measure the exact pressure employed in taking the trace, and thereby to obtain corresponding knowledge of the intra-arterial pressure, is illusory. To say nothing of the varying thickness and resistance of the skin, which would of itself vitiate all conclusions of this kind in at least three ways—by difference of flexibility, by affecting the position of the spring, and by varying the area of the button or pad actually in contact with the skin,—the size of the artery would introduce an element of uncertainty. Hydraulic pressure is equal at every point of the containing surface, and its force is multiplied by increase of area; the greater surface, therefore, of a large vessel would exercise greater lifting power, so that the same blood-pressure would appear to be higher or lower according to the diameter of the artery. For the same reason buttons or pads of different size resting on the vessel would affect the degree of force required in order to compress it, as would slight differences of adjustment. A knife-edge resting transversely across the vessel eliminates some of these uncertainties, and gives a more accurate trace, but requires delicate adjustment of the strength of the spring. The above would be true if the pressure exercised by the spring were accurately graduated; but this is far from being the case in any sphygmograph known to me, and graduation by the eccentric commonly employed is ridiculously inexact. While, then, I think that every student ought to be familiar with the sphygmograph, and will gain from a study of its indications a comprehension of the pulse in its different forms obtainable in no other way, I am of opinion that we learn by means of the educated finger all that the sphygmograph can teach, and more. It is invaluable as a means of educating the sense of touch, and of cultivating the faculty of observation; it is most useful in resolving doubts as to the difference between the pulse of the two sides in some cases of aneurysm, and in recording pulses in the graphic form; but it is not an infallible court of appeal, and there are niceties of information which are out of its reach. I need only point to the groups of pulse-tracings exhibited, which are by experts, to show that a sphygmogram does not speak for itself, but requires interpretation. One set is a series of normal traces made for me by the late Dr. Mahomed to illustrate my lectures at St. Mary's; the other is a copy from Marey's pulse of aortic regurgitation.

In examining the pulse our object is to obtain the most complete and exact knowledge attainable as to the circulation, and to interpret accurately the facts we observe, and I must be the more careful in describing the method to be followed, as I do not propose to refer to the sphygmograph. The point first noted is the frequency, the number of beats per minute and the regularity or irregularity of the beats, with regard to time, and their equality or inequality in force. This is simple and easy. We should naturally wish, in the next place, to estimate the force or strength of the pulse, but considerations which modify the idea derived from the impression made on the fingers may first be conveniently discussed. It will be well, therefore, after counting the pulse, to give attention to the size of the artery. This varies greatly in different individuals, and may differ in the two wrists of the same person. It varies, again, greatly according as the muscular coat is relaxed or contracted. We have, then, to distinguish between congenital differences in the diameter of the vessels and variations induced by physiological or pathological influences. Now a large artery will communicate a more perceptible impression to the fingers placed lightly upon it than a small one, and the beat will seem more forcible. On the other hand, the pulse wave can usually be arrested more readily by pressure in a large artery, and the pulse is more compressible; one mode of examination thus controls or corrects the other. When the artery is small, and especially when it is rendered small by contraction of its muscular coat, there appears to be little pulsation in it, and the pulse may easily be set down as weak; but let an attempt be made to obliterate it by compression, and it often seems as if the pulse grew stronger as the pressure on the vessel increased.

An important point to be investigated is the degree of constant pressure prevailing in the arteries. The constant intra-arterial pressure, or pulse tension, is determined first by rolling the artery transversely under the three fingers, or endeavouring to do so. In a pulse of average tension, the vessel only stands out so as to be felt distinctly during the actual beat, and subsides gradually or rapidly in the interval; it cannot, therefore, be rolled by the fingers at all periods, though it may generally be distinguished with care, even between the beats, especially when the skin is thin and flexible. In a pulse of low tension the vessel can scarcely be said to be felt as such at all; it starts up with the beat, and is at once lost again when the brief wave has passed. In a pulse of high tension, on the other hand, the artery stands out among the structures of the wrist like another tendon, and can be rolled like a cord under the fingers, and followed often half-way up the forearm. While the vessel is thus being rolled about, the pulsation in it may scarcely make itself felt, and the artery can often be seen distinctly, if the skin is thin, projecting on the surface without any appearance of pulsation, except where it is thrown into curves. Pressure, however, brings out the pulsation and develops its force.

The character of the beat is another matter for study; and, brief as is the period occupied by it, each pulse-wave presents a rise, duration, and fall. It may strike the finger suddenly, or lift it deliberately; the distension of the artery may be momentary only, or it may persist for a time; the fall of pressure finally may be abrupt or gradual. For the most part, a sudden rise, brief duration, and abrupt fall go together, and constitute the short pulse of large arteries and low tension; while a gradual rise, persistent fulness, and slow decline are usually associated, and give the long pulse of contracted arteries and high tension. Exceptions, however, occur, and they are often of great significance. There may be a large vessel and sudden pulse when the tension is relatively high with dilatation of the left ventricle, and a

small artery, slowly and feebly filled, in extreme low tension with cardiac weakness.

We are now prepared to estimate the strength of the pulse. Three fingers are placed on the vessel, as is supposed to be the case from first to last. With that nearest the heart, pressure is made till the wave is arrested, so as not to be felt by the other fingers, or, if necessary, two fingers are employed to extinguish the pulsation. In this way, by the degree of pressure required, and by varying the pressure with one, two, or all three fingers, an idea is obtained of the force with which the heart is propelling the blood onwards. Account will have been taken already of the size of the vessel, and the method of noting the tension will have brought out other points which enter into consideration.

I have spoken of the manœuvre of rolling the vessel transversely under the fingers as a means of estimating the pressure and tension by which it is maintained in the cylindrical form. Another manœuvre by which the state of the coats of the artery is ascertained is to carry the skin along it longitudinally with varying pressure; curves in its course and bulging in its walls are thus detected; inequalities of thickness and density in the coats are felt, sometimes mere thickening and hardening, at others actual patches of rigidity and calcareous deposit; or the entire vessel may be found to have a thick, leathery, inelastic feel, or may be converted into an irregular, hard, calcareous tube, or may feel like a string of beads under the finger.

One more question of observation must be taken up—the recognition of dicrotism. For this purpose the fingers must rest as lightly as possible on the vessel, and uniform gentle pressure must then be made by all three. The dicrotic wave, when well within physiological limits of variation, will be felt like an echo of the principal beat, and when well marked is extremely distinct. A complete account of the pulse then should specify (1) the frequency—that is, the number of beats per minute, with a note of any irregularity or intermission or instability of the rhythm; (2) the size of the vessel; (3) the degree of distension of the artery between the beats; (4) the character of the pulsation, whether its access is sudden or gradual, its duration short or long, its subsidence abrupt or slow, note being taken of dicrotism when present; (5) the force or strength of both, the constant and variable pressure within the artery, as measured by its compressibility; (6) the state of the arterial walls. How far the description of the pulse usually given, even in cases in which much turns upon it, falls short of these requirements it is unnecessary to state.

It is impossible to examine with attention a large number of pulses, whether among the healthy or sick, without being struck by the extraordinary diversity of frequency, size, character, tension, and force met with. This diversity prevails quite independentiy of disease, in both sexes and at all ages, especially with regard to diameter of vessel and tension and force of pulse. If we judged only according to the size of the blood-channels, together with the pressure within them, we should be compelled to estimate the amount of blood flowing through the arterial system as three or four times as much in some persons as in others. But the amount of blood actually put in circulation is determined by the volume of blood discharged at each systole, and the number of contractions a minute, and assuming that the ventricles empty themselves at each contraction, there is no such difference in the capacity of the ventricle or in the rate of the heart's action as would corroborate the above estimate. Still, taking everything into account, there must, when we compare the small, short, compressible pulse of one man with the large, firm, and long pulse of another, be great differences in the rate and energy of the movement of blood through the capillaries in different individuals, and clearly there are great differences in the circulation of the same person at different times. The fact that such differences are compatible with health and vigour is conclusive evidence that nutrition and functional efficiency, even of the nerve centres, are not in such close relation with and intimate dependence upon the blood-supply as we are sometimes apt to suppose; and additional evidence, pointing in the same direction, is furnished by certain cases of valvular disease of the heart, as, for example, mitral stenosis, and of such functional derangements, for example, as that in which the pulse-rate is only 35 or 40 a minute, and there are two beats of the heart to one of the pulse, which will render the transit of blood through the heart more slow. There must, in effect, be provision for a very large margin of excess beyond the minimum blood-supply required for the purposes of the tissues and organs generally. It is a noteworthy fact, too, that in acute disease, which is attended with weakness and wasting, the circulation of the blood is accelerated, as is indicated by the larger diameter of the vessels and the increased frequency of the heart's action.

I have not been able to connect differences in the circulation with any constant bodily or mental character. A marked tendency to obesity appears usually to be associated with small arteries and low tension; and the thin wiry individual commonly has large arteries, which are conspicuous, not only from the thinness of the skin and absence of subcutaneous connective tissue, but also because, together with their size, they are markedly full between the beats. People with low arterial tension seem to wear out less quickly, and to furnish most of the examples of longevity; but they appear to have less power of resistance in acute disease. These, however, are given as mere impressions. Speaking generally, I have found physical strength, energy, and endurance impartially associated with small low tension pulse, and with large arteries and high tension, and the reverse. I can say the same of intellect, perseverance, courage, and force of character generally; they appear to be absolutely independent of circulatory conditions. It is, indeed, clear that the circulation is not the determining influence in the production of the differences which are found to exist in respect of bodily or mental energy. The circulation is the servant, and not the master; and, physiologically, it is tissue activity which conditions the blood-supply, and not the blood-supply which conditions the tissue changes. In disease, again, the modifications of the circulation which are observed are far more frequently effects than causes, and the pulse is an index not so much of a more or less rapid movement of the blood, to be taken into account as a factor in the morbid processes, as of the state of the nervous system and of the body generally which has determined its rate and character.

It would be impossible to discuss systematically all the indications afforded by the pulse in the course of these lectures, and it would be most undesirable to attempt it. Many of them do not depend upon a comprehension of the circulatory conditions which the varieties of pulse denote, or, indeed, upon a knowledge of the circulation at all. Observant physicians before the time of Harvey could gauge thoroughly the state of the patient in fever from the pulse, and it is not for the purpose of estimating the movement of the blood that we ourselves in a case of fever count the beats and note their force and volume. We calculate from the data thus obtained the strength of the sufferer and the effect upon him of the disease; and we might or might not do this more accurately than our predecessors. On the other hand, it is only through a knowledge of the conditions which govern the circulation that such facts as the connexion between kidney disease and cerebral hæmorrhage can be understood, and that the prognostic significance of the hard pulse which betrays this connexion can be appreciated. The ordinary diagnostic and prognostic indications of the pulse, then, which are learnt only by experience, and which would gain nothing by exposition in lectures, will not be considered, and I shall take up only such points with regard to the pulse as illustrate either effects of circulatory derangements or advances in our knowledge obtained by the more profound investigations of recent years.

I propose, then, to consider, first, deviations from normal frequency and abnormalities of the rhythm, which I hope to dispose of in this lecture; next, variations of tension, their causes and consequences, and the indications for treatment which they furnish—these, with perhaps the pulse of heart disease, will occupy the second lecture; the subject of the third will be the pulse and cerebral affections.

Frequency.—The rate of the heart's action, with which the frequency of the pulse corresponds, is governed by various influences. Resistance to the onward current of blood in the arteries, or, in other words, increase of pressure in the arterial system, whether produced by compression of large vessels, such as the femorals and brachials, or by obstruction in the arterioles and capillaries, tends to slow the action of the heart and render the pulse less frequent, and, conversely, diminished resistance or lowered tension accelerates the heart and pulse rate. But more direct and powerful than these varieties of the arterial pressure, and entirely overruling their tendency, are nervous influences, of which the channels are the pneumogastric and sympathetic nerves. It is not my intention to enter at all upon a discussion or

explanation of the respective action of these nerves; this would help us very little clinically, and knowledge with regard to them has not yet reached a perfectly stable condition. The question, too, is rendered complex by the fact that nervous influences reach the arterioles and capillaries as well as the heart, and modify the outflow of blood and the arterial tension; and an effect upon the heart, apparently direct, may be brought about indirectly through variations in the degree or resistance in the circulation. Almost all departures from a normal state of health are attended by increased frequency of the pulse, and it would serve no useful purpose to enumerate and attempt to classify the causes of pulse frequency, while its prognostic indications are so varied and delicate that they would elude description. They are, besides, among those matters of experience which are independent of scientific investigation, and are excluded under the rule which I have taken for my guidance. There are, however, cases in which frequency of the pulse, or rather of the heart's action, constitutes in itself the disease, or if not actually the disease, yet at least a source of danger and suffering. Such frequency is one form of palpitation of the heart. The fugitive attacks of hurried and violent action of the heart, induced by indigestion or emotion or over-exertion, need not occupy our attention; and I shall not do more than allude to the persistent frequency of the pulse in Graves' disease, or in hysterical conditions, or associated with aortic pulsation.

Persistent frequency of pulse.—Persistent frequency of pulse is one of the consequences of over-strain of the heart by exertion. It is met with in young men who have overtaxed their powers in rowing, training for races, or heavy gun drill, and was observed on a large scale in the American war. The name "irritable heart" employed as a descriptive term may very well be accepted. Besides the beating of the heart of which the patient is conscious, there are breathlessness on exertion, nervousness, depression of spirits and anxiety, sensations of faintness, sleeplessness, and incapacity for sustained exertion. In all the cases of this kind which I have seen, the pulse tension has been high. The great remedy for this condition is rest, and from one to three weeks in bed, however irksome and wearisome at this period of life, may be well spent in allowing the heart to settle down. During and after middle age, persistent frequency of pulse may be induced by a single act of excessive exertion, such as running to catch a train. The effects upon the heart of such an imprudence vary; there may be dilatation of the heart, with or without insufficiency of the mitral valve, or a valve may be actually damaged, or the action of the heart may become irregular; but, besides these, it may become hurried without irregularity, and the frequency may persist till the strength of the patient is worn out. Here, again, the arterial tension is, according to my experience, high, spasm of the peripheral vessels contributing to the effect, so that the distension of the arteries is not simply the result of blood being driven into the arterial system in consequence of the increased frequency of the heart's contractions. No satisfactory explanation has been given of these cases, and I have none to offer. Perhaps the most plausible is that the plex of minute nerve-ganglia and network of fibres so copiously distributed beneath the endocardium may have been stretched and rendered unduly irritable.

Paroxysmal palpitation.—It is late in life that paroxysmal palpitation with frequency of pulse is most commonly a cause of suffering and danger, shortening life and rendering it miserable. It may complicate heart disease of any kind, and may possibly sometimes be one of the consequences of the disease, but it may occur independently of valvular affection or of any structural change sufficiently advanced for recognition, and it has seemed to me that when disease of the heart is present the palpitation is often rather a complication than a consequence. The exciting cause may be indigestion and flatulence, or the mere act of taking food, lying down, emotion, apprehension of an attack at a particular hour or under given circumstances associated with former attacks; but, whatever this may be, the onset of the paroxysm is frequently accompanied by a sudden relaxation of the arteries, and the palpitation seems to resemble the excited action of the heart set up by nitrite of amyl or nitro-glycerine. Resistance to which it is habituated is suddenly removed, and the heart starts off like the engine of a locomotive when the wheels fail to bite the rails. In the course of a prolonged attendance upon a medical man advanced in years and long subject to gout, who suffered greatly from palpitation, this occurred more than once; when my hand was on the pulse the artery became large and soft, there was a flutter of the heart, which then bounded off. A remarkable complication occurred in this case which is worthy of being related. Early one morning the patient began to bring up bloody fluid from the lungs, and in the course of twenty-four hours expectorated several pints of it. A pink froth covered the bright-red liquid to the depth of half an inch, and the whole looked very much like the boiling red-currant juice in the process of making jelly. There was no rise of temperature, the flux of blood-stained serum gradually ceased, and palpitation did not recur for several months, when, after imprudent fatigue and exposure, it returned, and ultimately wore out the patient. It should be added that there was no valvular disease, and only moderate dilatation and hypertrophy with old-standing high arterial tension.

There still remains for notice the extraordinary rapid action of the heart, which can only be referred to some neurotic condition, lasting for days or weeks or months, of which numerous examples are on record. One of the most remarkable is that recently brought before the Neurological Society by Dr. Bristowe, to whom I am indebted for the following particulars: The patient was nineteen years of age, and there was reason to think that the affection dated from the age of eight, the attacks of rapid action of the heart recurring from time to time. When he entered St. Thomas's Hospital, he was suffering from anasarca and pulmonary apoplexy, which had supervened in the course of an attack which had lasted some months. The pulse varied, but often numbered 200 or 240. Under the influence of iron and digitalis, the action of the heart quieted down to about the normal, but was easily excited, and during one visit to the hospital the beats were counted at the rate of 304 or 308 a minute. He had resumed work as a draper's assistant, and on Feb. 26th was at work till midnight. Next morning he did not seem much the worse for it, but at midday, while playing the piano, he suddenly stopped and fell down dead. The heart was somewhat enlarged and dilated, but the valves were normal, and no other disease was discovered.

For particulars of another interesting case, with post-mortem examination, I am indebted to Dr. Dreschfeld and Dr. R. Maguire. The patient, a labourer, aged thirty-six, who had had syphilis and had been a heavy drinker, had suffered, when first seen in October, 1883, from attacks of palpitation for twelve months, which came on suddenly after a heavy supper, and were attended with vomiting, and usually lasted from fourteen to twenty days. The pulse rate was found to be from 215 to 230. No cardiac or other disease was discoverable. He improved under digitalis, the pulse falling rapidly to 86. He was again seen in December, 1883, and March, 1884, with relapse of palpitation and a pulse of from 200 to 215. On this last occasion, while under treatment by convallaria, he died in an attack of convulsions. The heart was large, and its structure presented degenerative changes, but nothing was found which could explain the rapid heart action.

Several cases have come under my observation in hospital or in consultation of which the course and sequel have not been known to me. In one seen with Mr. Stanley Smith in the course of last year, the patient, a lady aged sixty-four, died after seventeen days' illness, during which the pulse ranged from 150 to 200, the heart being apparently worn out. In one case I saw the patient, a lady of about forty-five, almost daily for about three weeks. The pulse was never under 200, usually 240, and there was every reason to believe that the heart was beating at the same rate during the whole of the time. The artery was small, full between the beats, not easily compressible, and the pulsation felt more like a vibration than a beat, and gave the impression of there being little or no onward propulsion of the blood. The heart sounds were short and equi-distant, and reminded me of the puffing of a distant locomotive. There was no opportunity of examining the pulse or heart during sleep, but the sleep was broken, and the feelings attendant on the palpitation were always present. This was a second attack after an interval of some years. I saw her in the first, which lasted about five days, and left her looking old and worn. She survived the second for at least two years, since which time I have not heard of her.

Another case was brought to me by Dr. Seccombe, in April, 1886. The patient, a gentleman aged fifty-six, was stout, and had a good colour, had lived freely in all respects, and worked hard. He had been suffering from palpitation night and day for three weeks, sleeping for two hours only, and

then restless all night. The pulse was 160, and had the character described in the last case. [A trace was here shown.] There was a reduplication of the second sound of the heart, best heard near the apex. The liver and spleen were large. Three weeks later the patient still looked extremely well, and his appetite was good, but he was subject to feelings of suffocation, during which he flushed, and his eyes had an expression of distress; these were brought on by very slight exertion or by stooping. He refused to consider himself an invalid, and went about much as usual. He could lie in any position, but when on his left side required a pillow under the side. He usually slept till 3 A.M., and then woke up suddenly. The palpitation had never ceased; the pulse was always 160; the heart was not much enlarged, the sounds equi-distant, the aortic second having a ringing note at the right second space; slight jugular pulsation was visible on the right side, and the liver was large; crepitation was heard in both lungs posteriorly, as high as the angle of the scapula. In June, when seen again, the palpitation continued, having lasted now three months. He had been out of town, and looked as well as ever, but evidences of stasis in the circulation had made their appearance, the legs had suddenly swollen, he could not lie down, and the liver was extremely large. The pulse was still 160; the heart beats as before, equi-distant. Various lines of treatment had been tried without effect, and digitalis seemed to do harm. I have not seen the patient since, but I learn from Dr. Seccombe that he continued to suffer very much until November, when improvement began, and the patient was recently said to be so much better as to wish to resume his official duties. A later account, however, describes him as having had an attack of hemiplegia. This rapid action of the heart is, so far as I know, unexplained, except by referring it to some obscure neurotic influence. It is met with almost at all ages (Dr. Bristowe's patient appears to have been subject to it from the age of eight, and died of it at nineteen, and I have seen it in a child of ten), although it is more common after middle life than before; usually there is some apparent exciting cause, such as would put stress upon the heart; overwork and anxiety are the most common, but the predisposition, which is of more consequence, eludes us; sooner or later sudden death is the result.

It is interesting to speculate on the condition of the circulation. Clearly it is not accelerated, and the dropsy in Dr. Bristowe's and Dr. Seccombe's cases show that the tendency is to stasis. The pulse, too, gives one the idea of vibratory alternations of pressure with little onward movement. The question then arises, What is the condition of the left ventricle? Either it does not fill in diastole, or it fails to empty itself on systole. It may be that in some cases it is contracted, and refuses to dilate to receive blood from the auricle, and that in others it is in a state of over-distension; but it seems to me that the former is the more probable condition. I have usually found the heart of normal size, whereas persistent distension would sooner or later give rise to dilatation. Again, the cardiac impulse is often extremely powerful—I have seen the stethoscope lifted through a woman's stays—and this is inconsistent with over-distension. It might be asked, again, whether the peripheral arterioles and capillaries played any part in the phenomenon, or the pulmonary circulation? These are questions which I am unable to answer, and it is a satisfaction to me to know that the subject is engaging the attention of Dr. Bristowe.

A CREMATION CONGRESS.—It is intended to hold an International Congress on Cremation in September of the present year, the place selected for the gathering being Milan. French will be the official language, but the speakers may, if they like, make use of any other language. Reports will be submitted as to the progress made in the practice of cremation in different countries, and the formation of an international league will be proposed. An exhibition of models of crematories, urns, and other objects connected with the campaign now being conducted against the present methods of disposing of the dead will be open during the congress.

MR. T. M'LEAN has already opened his spring exhibition of oil paintings in the Haymarket. The collection is of the usual cosmopolitan character, and contains some sixty pictures, of which a "Foraging Party" of wild boars by Rosa Bonheur and Sir John Millais' "Fern Gatherer" will probably command most attention.

Gulstonian Lectures
ON THE
NATURE OF FEVER.

Delivered at the Royal College of Physicians,

BY D. MACALISTER, M.A., M.D., F.R.C.P.,
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LECTURE III.

MR. PRESIDENT AND GENTLEMEN,—In the last lecture I gave at some length my reasons for believing that the thermogenic function of the skeletal muscles, the chief sources of heat in health and in disease, is dependent on their innervation. I spoke of this innervation as twofold, corresponding to the motor and inhibitory innervation of the vascular and visceral muscles and of the heart. From the point of view of the chemical changes which take place in thermogenesis, I spoke of the nerves concerned as respectively catabolic and anabolic. The latter nerves were inhibitory of heat production, inasmuch as their influence is towards the upbuilding of the hypothetical "thermogen" and the simultaneous absorption of energy. The former were excitors of heat production inasmuch as they induce destructive metabolism with oxidation and the liberation of energy. Briefly this view of thermogenesis was suggested (1) by the chemical fact that in the normal thermogenic, as in the normal contractile, metabolism of muscle there is no adequate evidence of increased nitrogenous waste, but only of the absorption of oxygen and the liberation of carbonic acid and water; the nitrogenous molecule of the muscle substance must be continuously upbuilt again as it is continuously being unbuilt, anabolism going hand in hand with catabolism; and (2) by the cardinal physiological doctrine taught us by Dr. Gaskell, that catabolism or disintegration is the symptom of "motor" or "excitor" nervous action, and anabolism or restoration of "inhibitory" nervous action. The physiological doctrine was, you will remember, strongly supported by the phenomena presented by the heart muscle and its double nerve-supply through the sympathetic and the vagus; it was rendered probable in the case of the visceral and vascular involuntary muscles, and on analogical and other grounds inferred in the case of the voluntary muscles and the secreting glands.

Another line of analogical reasoning to which you may or may not be inclined to give weight suggested that, as the nervous mechanisms of heat loss—namely, those subserving circulation and respiration—had a twofold character, and were maintained in balance by the joint action of opposing influences, respectively motor and inhibitory, so too the nervous mechanism of heat production was twofold, and in health maintained a "thermogenic tonus," a balance between tendencies towards the liberation of thermal energy on the one hand and its repression or absorption on the other.

I have to confess that we know little or nothing as yet of the anatomical course of the thermal nerves of the muscles. The motor trunks would appear to contain the thermogenic fibres—if, indeed, they are not identical with the motor fibres. But as to the course of the anabolic fibres we can only conjecture, and the analogies which we have to guide us are too obscure for me to dwell on here. This ignorance would be more depressing if we held to the notion that anatomy had fulfilled its task and explored exhaustively the whole field of the peripheral nervous system. But when I remember that it is only since the other day that the physiological, anatomical, and morphological relations of the so-called sympathetic system to the spinal nerves have been at all clearly understood, I do not despair of further great discoveries. In my own opinion the work of anatomy, guided by the light of physiological research, is in this domain scarcely even begun. When it is complete I have little doubt that the relations, anatomical and morphological, of the anabolic nerves to the central system will appear as definite as those of the motor nerves.

I proceed to consider some of the attempts that have been made to trace the thermal nerves into and through the central nervous system. I do not for a moment profess to

give a complete summary of all that has been done, even in recent times, to investigate the relations of the cerebro-spinal system to thermogenesis. A very large number of these researches are to my mind vitiated, in that they are merely thermometrical. Without calorimetry, or—what in a sense we may regard as equivalent—the measurement of the oxidative or other destructive metabolism accompanying experimental lesions of the nervous centres, we can infer little that is certain as to the mechanism of heat production. The concurrent effects of the processes of heat loss are not easily to be eliminated or allowed for, and the results thus complicated are at best ambiguous.

To take a familiar example: it has been known from the time of Sir Benjamin Brodie that section of the spinal cord is in some cases followed by a surprising rise of the body temperature. In other instances the temperature falls; and some observers have found that according as the animal is exposed to a warmer or cooler medium, according as it is wrapped up or naked, its temperature will ultimately rise high or sink low. Wood has shown how these inconsistencies may be reconciled by measuring the actual heat produced by an animal before and after section. As the result of many rigorous experiments, he is able to state as demonstrated, that "section of the spinal cord above the origin of the splanchnic nerves is usually followed by an immediate very decided increase in the amount of heat dissipated from the body, and also by a decided lessening of the amount of heat produced." The vaso-motor tracts being divided in these experiments, it is certain that vaso-motor paralysis has a great deal to do with the increased loss of heat, while the paralysed muscles, being cut off from their regulating nerve-supply, are apt to have their thermogenesis increased or diminished by the high or low temperature of the surrounding medium, much as when they are poisoned with curare. The temperature of the body is thus the resultant of a number of diverse thermal tendencies; and as one or the other is in the ascendant the temperature rises or falls. Successively higher and higher sections of the cord at length carry us to a level above the highest or dominating vaso-motor centre in the medulla, and not till then do we get results that are fairly uniform and intelligible. If the medulla is partially divided close to its junction with the pons, the vaso-motor mechanism appears to remain intact; at any rate, the usual physiological test of its integrity—marked rise of blood-pressure when a sensory nerve is stimulated—is readily obtained. The operation itself is not easy, but when it is successfully performed the thermal consequences are remarkable. I attach little importance to the alleged results of Tschetschichin, now twenty years old, or to the alleged failure of others since to confirm them. Both the discoverer and his critics seem to have tested merely the temperature of the animals operated on; and this varies according to circumstances. But when we come to measure the thermogenesis the case is different. In the dog at least there is generally a rise of temperature; but whether this happens or not, the rate of heat production is invariably augmented. Heat loss is also increased, but it seldom keeps pace with the heat production. Moreover, the increased heat production is not simply transient, it goes on for a long time, and in some instances is greater twenty-four hours after operation than it is at first. Again, when the same region—namely, the part of the medulla which immediately adjoins the pons—is mechanically irritated by a puncture, in several instances a marked temporary fall in the rate of heat production has been observed (Wood), though in others electrical stimulation of the part is said to have been followed by a prompt rise of temperature at least.

These experiments certainly suggest the hypothesis that the region in question is traversed by some of the anabolic or inhibitory fibres. Severance of them is followed by a disturbance of the balance I have called thermogenic tonus; the inhibitory influence being cut off, the excitor influence has full sway. Irritation of the same tract is followed by a temporary diminution of thermogenesis, just as irritation of the vagus tract is followed by a temporary diminution of the contractile activity of the heart. I have scrutinised the tabulated results of the published experiments to see whether there were any traces of an increased vigour of the thermogenic function following the temporary diminution, such as might be expected to result from the stimulation of an anabolic nerve, and such as we find to follow the vagus inhibition of the heart (see Lecture II.). The figures are unfortunately insufficient for the purpose, with one exception, given in Wood's series. In this case puncture of the pons-medulla at first lessened the heat production by no less than two-thirds. But in twenty-four hours, in spite of the exhaustion of the animal, in spite too of its prolonged abstinence from food, the rate of heat production increased again to within one-fifth of the normal rate. This at least suggests considerable vigour in the thermogenic function, and it may be an instance of improvement following inhibition.

Professor Wood has gone further in his attempts to trace upwards the inhibitory tract. He has sought, following Eulenburg and Landois, to determine the influence of certain cortical and subcortical lesions upon thermogenesis. His methods for producing the experimental lesions are no doubt less refined and precise than those to which the classical researches of Dr. Ferrier have accustomed us. But his results, extending to some twenty laborious experiments, are so uniform and so striking that, if we accept his statement of them at all, it is difficult to resist the conclusion that severe injury of certain regions in the cortex or beneath it is, in the dog at least, followed not merely by rise of temperature—that is of secondary importance—but by increased production of heat. The cortical area is just posterior to the crucial sulcus, and corresponds in Hitzig's and Ferrier's scheme to the motor region for the muscular masses of the limbs. The experiments in which stimulation rather than destructive injury of this region was attempted are neither numerous nor altogether satisfactory, but so far as they go they agree with the older experiments of Eulenburg and Landois, in which local electrical stimulation of one of the areas was followed by a slight temporary *cooling* of the opposite extremities. Dr. Ferrier, in the last edition of his great work,[1] regards this as due to contraction of the bloodvessels, and the long enduring and considerable increase of heat production which follows destruction of the areas as due to dilatation of the vessels. Changes in the distribution of temperature may, and do, result from changes in the vascularity of the tissues; but I know of nothing that justifies us in straightway assuming that such changes affect thermogenesis. The *mere* flushing of a muscle with blood need not increase the metabolism of the muscle substance, unless the latter is simultaneously stimulated to functional activity, unless it is moved *ab extra* to take advantage of the opportunities for assimilation which are offered to it. Cut off the innervation of a muscle by curare, and you may cause the arterial blood to rush through its vessels without appreciably increasing its oxidative metabolism. For this reason, in addition to those given by Professor Wood, I am unable to correlate the thermogenic phenomena resulting from destruction or stimulation of the cortex with vaso-motor changes: I say nothing for the present of the thermometric phenomena. So far, then, it would appear that there is experimental evidence that the tract containing the nerve fibres inhibitory of the thermogenic function of the muscles runs through the medulla into the pons; there is, moreover, experimental evidence that, in the dog at least, a cortical or subcortical region coinciding in part with the motor region is concerned with thermogenesis, and is probably in connexion with the inhibitory tract.

Allow me next to call your attention to an interesting series of experiments by Messrs. Aronsohn and Sachs of Berlin. They are thermometric, not calorimetric, and therefore at first sight bear on temperature rather than thermogenesis; but as simultaneous measurements were made of the oxygen consumed and the carbonic acid discharged, we are able to draw from them certain conclusions of interest as regards febrile heat. Some of the striking phenomena in question were shown to a number of the visitors to the Berlin Medical Congress in 1885.

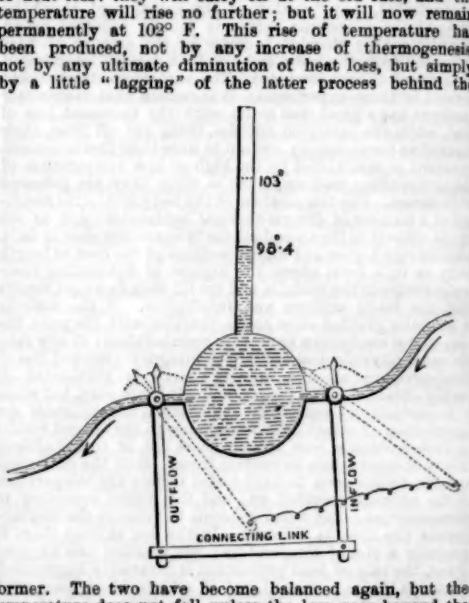
When a puncture with a fine needle is made through the brain of a rabbit in such wise as to pass vertically through the medial side of the corpus striatum near the *nodus cursorius* of Nothnagel, the temperature in the muscles and in the rectum promptly rises from 1½° to 2½° C., or say 2½° to 4½ F., and remains high for many hours, returning ultimately to the normal again. The animal appears to be but little affected by the operation, and eats and moves about gaily. It need not be tied up or confined in any way, and the temperature of the room may be ordinary. But the result seems invariably to follow, and it can be reproduced again and again in the same animal. It is not due to irritation or injury of the cortex or of the white

[1] Functions of the Brain, ed. 1886, pp. 87, 253.

matter immediately underlying it, for superficial or shallow punctures are without effect. The sensitive region is of no great extent, and can be defined with considerable precision. The question that always rises in experiments of the kind rises here also: Is the result due to stimulation or to destruction of the nervous elements that are punctured? Our experimenters have apparently answered this question in a satisfactory way. By a highly ingenious method they succeeded in passing a weak electric current through the sensitive region, and that without exciting any of the neighbouring parts. The result was striking. The temperature in the muscles rose with every passage of the current, and could at will be kept at a febrile height for many hours together. The rise of temperature appeared thus to be unmistakably due to stimulation, and not to injury. And here remark that the febrile condition could hardly be due to any contraction of the cutaneous vessels, to any *retention* of heat, for it was observed that the temperatures of the skin, the muscles, and the rectum rose and fell together. Moreover, when means were provided for estimating the oxygen consumed and the carbonic acid given off, they were found to be increased during the artificial fever to about the same extent as in ordinary fever of like intensity, and the nitrogen excreted in the twenty-four hours after the puncture was something like 25 per cent. greater than in the twenty-four hours before the puncture. From all these facts the conclusion is hardly to be resisted—that by the stimulation of a particular region to the inner side of the corpus striatum the thermogenic function of the muscles is abnormally increased, and therewith their catabolic or oxidative metabolism; and this, without encroaching on the motor tract, without exciting the motor function, and without any action that can fairly be called vaso-motor, coming into play. I am not going to say that the circumscribed region of the brain so carefully explored by Messrs. Aronsohn and Sachs is a thermogenic "centre," for I know that by some pathologists the word is banned. But I do say that, if the evidence is worth anything, it proves that the region is connected intimately with the thermogenic tract; that the catabolic fibres which proceed to the muscles and in them excite the thermogenic function, are here capable of being reached and stimulated apart from the motor nerves. It is this fact which makes one hesitate at once to say that the thermogenic fibres to the muscles are identical with the motor fibres. It is not easy to see how they can dichotomise again at their central terminations, the motor running through the internal capsule, the thermogenic quite to the inner side of the corpus striatum.

There is another aspect in which we may view these experiments. During the period in which the sensitive spot is being at intervals electrically stimulated, the animal's temperature is markedly raised, its rate of heat production is apparently increased, it is consuming more oxygen and giving off more carbonic acid than is normal; by all the signs of disordered body heat, by all the symptoms which imply pyrexia, the animal is in a state of fever. When the stimulation ceases the fever subsides. In other words, by exciting to excessive action a particular spot within the brain, we can bring about a fever of moderate intensity indistinguishable while it lasts from any other produced in more familiar ways. We have generated a fever by a direct action on the central nervous system.

Before I proceed to suggest to you my own belief that all fever is due to an action on the central nervous system, I must anticipate a possible misunderstanding. I have more than once remarked, in passing, on the distinction between high temperature and increased heat-production. It is due to you, and necessary to my remaining arguments, that I should make clear wherein the distinction is of importance. In my first lecture I spoke of disorder of the body heat as the essential condition of fever, whose frequent and most manifest symptom is high temperature. But I now go further, and say that high temperature is not necessarily fever, and that fever is not necessarily accompanied by high temperature. We may have a *febris sine febre*, a morbid thermogenesis without high temperature, the increased heat-production being compensated or more than compensated by increased heat loss. And we may have a rise of temperature even with diminished thermogenesis, if the heat loss is so diminished as no longer to balance even the diminished production. The former would be fever, though the patient were cool; the latter would not be fever, even though the patient were hot. It is the excessive thermogenesis, with the excessive catabolism of nitrogenous tissue which that involves, that constitute fever. Without this condition the mere temperature may run for a time to a "paradoxical" height, to a point at which we might expect the albumens of the body to coagulate; and yet the patient may recover, and promptly too, for there has been no excessive combustion, no consuming of the tissues. Consider on how slight a dislocation of the normal relation of gain to loss a marked rise of temperature may depend. An adult man in ordinary health breeds enough heat in half an hour to raise his own temperature one degree Centigrade. In half an hour he discharges an equal amount of heat into the air, and so his temperature is *not* raised. But suppose for a moment that all automatic connexion between the two processes were broken for the space of an hour, that the two could work independently of each other and of the temperature. Suppose further that the heat loss were somehow checked entirely for the hour and then restored to its normal rate. The heat-production need not alter a jot, but it would all go to raise the temperature: at the end of the hour the temperature would be higher by 2° C. or 3·6° F. Open now the channels of heat loss: they will carry off at the old rate, and the temperature will rise no further; but it will now remain permanently at 102° F. This rise of temperature has been produced, not by any increase of thermogenesis, not by any ultimate diminution of heat loss, but simply by a little "lagging" of the latter process behind the



former. The two have become balanced again, but the temperature does not fall unless the loss goes beyond the balancing point. And what is thus true of lagging in time is obviously true of lagging in degree. If the heat loss is not in abeyance, but merely a little less than the heat gain, the temperature will rise until it reaches a point at which the two are balanced again, and will remain there if the balance once obtained is maintained. In other words, the difference between the rate of heat production and the rate of heat loss at any moment is measured not by the temperature, but by the *gradient* of the temperature. The temperature itself, when it reaches its height, indicates the time it has taken for the one process to gain upon and at length overtake the other, but tells nothing as to the absolute activity of either. High temperature may thus be an indication of mere sluggishness or lagging, and is not *per se* an indication of increased heat or of increased combustion.

I have imagined that a working model might be arranged to illustrate this plain but constantly overlooked fact. (See woodcut.) Suppose a tall vessel containing water: the level of the water shall represent temperature. Let two pipes be connected with the vessel, the one bringing water to it, the other carrying it off. Let each be provided with a stopcock, and let the two stopcocks be connected by a rigid link which ensures that they always turn together and by the same amount. If, to start with, the inflow and outflow are equal, then, however I move the linked stopcocks, the height of the water will remain the same. Loss balances gain in every

position. Now remove the link and connect the stopcocks by a weak indiarubber band or a spiral spring. If I now move the inflow stopcock so as to increase the flow, the outflow one will not at once follow, and, the balance being broken, the level of the water will rise. Presently, as the elasticity of the spring comes into play, the outflow will become equal to the inflow, and the rise will cease; but the new high level will be maintained. Every movement of either stopcock will affect the level, which will fluctuate accordingly, but its height at any moment will not be an index of the amount of inflow at that moment. The inflow may be slight while the level is high. Of course inflow represents heat production, outflow heat loss, and the rigid link which first connected the two stopcocks the healthy thermotaxic mechanism. When this latter is weakened, or relaxed, or broken, the steadiness of the normal level is impossible. The fact that in fever, after the thermotaxic mechanism is disorganised, the temperature so frequently rises, shows that the next step in the process is usually excessive thermogenesis; and the fact that the temperature does not rise indefinitely shows that the mechanism of heat loss is less disordered or only transiently disordered, for though at first it lags behind the heat production, it ultimately overtakes it or overpasses it.

There is thus a certain order of progression observed in the disturbance of the thermal relations of the body. First and most easily disturbed is the thermotaxic nervous mechanism. If that is all that is disturbed, we shall have strange risings and fallings of temperature as the independent variations of production and loss are concurrent or the reverse, but there need be no fever. The balanced rhythm of anabolism and catabolism in the muscles is not disturbed; there is no excessive oxidation and no excessive inhibition. And the balanced rhythm of the respiration and the cutaneous circulation is also maintained, and with it the process of heat loss, but the latter need never be very excessive or very deficient. All that happens is that the two rhythms do not harmonise, and the fluctuations of the temperature correspond in a measure to the "beats" which are heard when two tones are sounded together that are nearly but not quite in concord. Cases of this thermal ataxia are not wanting; one such was under my charge for a time when acting for Dr. Paget at Addenbrooke's Hospital. He has described it in THE LANCET of July 4th, 1885. The patient was paraplegic, with at times a remarkably unstable temperature. For instance, on one day, when there was a trifling irregularity of the bowels, it ran up to 109·2° F., the pulse being at 80 and the respiration at 22; in three-quarters of an hour it was down to 97·8°. On another day it reached 110·4°, and in half an hour fell to 98·8° again. But there was no evidence of increased thermogenesis, no wasting, no failure of nutrition. Many similar "paradoxical" fluctuations of temperature, without fever, have been described.

The next degree of disturbance is that in which there is not only thermal ataxia, but disorder of the parts of the nervous system subserving heat production: there is under-action of the anabolic nerves with diminished construction and diminished absorption of energy; there is over-action of the catabolic nerves with increased oxidation and thermogenesis. Both factors of the normal thermogenic tonus are probably disordered together, but as I believe there is good reason for regarding the anabolic mechanism as "higher" than the catabolic, so there is reason for the view that it is in many cases the first and the most disordered. Weakening or abolition of the inhibitory influences with defective upbuilding of the "thermogenic stuff" in the muscles probably precedes excessive catabolic action, and to this may be due the pre-febrile discharge of urea which is occasionally observed. But soon the other factor of the thermogenic mechanism is disordered also, and there is excessive heat production. The net result is apparent wasting or "combustion," and generally high temperature. The thermotaxic mechanism is in abeyance; the immediate adjustment of heat loss to heat production is consequently hindered, the thermogenic mechanism gets a start, as it were, before the heat-discharging mechanism is called into play. Once the temperature is somewhat raised, the latter mechanism, if it is not itself disordered, is capable of increased activity and presently overtakes the work thrown upon it. But the "lagging" of the one process behind the other finds expression in the heightened temperature. This is ordinary pyrexia, and the nervous disorder does not in general go further. But there is another stage—namely, when the mechanism of heat loss is also profoundly disordered, so that the rise of temperature from the antecedent excessive thermogenesis does not stimulate it (or does not stimulate it enough) to make it overtake the latter until the temperature reaches an excessive or even a fatal height. This is hyperpyrexia.

To resume. The thermal nervous system has three parts; let us call them briefly the thermotaxic or adjusting, the thermogenic or producing, and the thermolytic or discharging mechanism. Disorder of the first implies irregularity of temperature only; disorder of the first and second implies, in general, heightened temperature and increased body heat—that is, ordinary fever; disorder of the first, second, and third implies, in general, hyperpyrexia, dangerous increase of heat, and steadily *rising* temperature. In the ascending scale of evolution we seem to rise from the thermolytic to the thermogenic and then to the thermotaxic nervous system. Cold-blooded animals possess the mechanism that in mammals becomes thermolytic—a nervous mechanism that controls the vessels and the breathing. The thermogenic system in them is ill-developed, and probably not well differentiated from the system of motor and inhibitory nerves that subserves locomotion. The frog in a normal condition hardly needs to generate heat in his muscles, but when the motor trunks are artificially stimulated heat *can* be produced in them. But his oxidative thermogenic metabolism is at best feeble, and we cannot easily throw him into an enduring fever. In young mammals the thermogenic system is developed before the thermotaxic. The instability of an infant's temperature is its chief characteristic. A little sends it into a high fever; a little restores it again. As the child grows, the range of its power of regulation increases, its temperature grows stable, and the thermotaxic mechanism is evolved.

Time fails me to say more as to the successive evolution of the three mechanisms from what we may call the historical point of view. The consideration of their organisation leads us, however, to a like result. In Dr. Hughlings Jackson's words, "Evolution is a passage from the most to the least organised—that is to say, from the lowest well-organised centres up to the highest least-organised centres; putting this otherwise, the progress is from centres comparatively well organised at birth up to those, the highest centres, which are continually organising through life." The order of organisation is, like that of evolution, — thermolytic, thermogenic, thermotaxic. The localisation of the thermolytic centres is admitted even by the opponents of localisation; they do not object to speak of the vaso-motor, respiratory, and sweat centres. The best organised and the most automatic centres are the best recognised, and the lowest. The cerebral thermogenic mechanism I have hardly ventured to speak of as consisting of "centres." Yet some observers claim to be able to point to the inhibitory centre, and others, as competent, to the excitor centre. I have laid before you specimens of both claims; that they are not universally admitted is to me evidence that the organisation of these thermogenic centres is less complete and therefore less localised; that they are, in a sense, in process of evolution; that they are higher than the thermolytic. As to the thermotaxic mechanism, no one, so far as I am aware, has been able to say it is at this spot or at that. Least organised, least automatic, least and last developed, its localisation is necessarily the most imperfect. But its existence I take to be as necessary as that of the "highest motor centres," which control and connect and represent the "middle motor centres" localised in the cortex. It coördinates because it represents the thermogenic and the thermolytic centres.

You will see from what I have said that, regarding the thermal mechanisms as a functional and evolutional hierarchy, I regard fever as a "dissolution," a progressive negative process, a relaxation of control from above downwards, in the same sense (and with the same reserves) that the term is used by Dr. Hughlings Jackson in his Croonian Lectures of 1884. The ideas set forth in that most suggestive course with reference to the evolution or dissolution of the motor functions I venture in all deference to apply to the correlative thermogenic function. If I may so express myself, the pains that have been taken to adjust our thermal relations to our environment, the nicety of the balance in widely varying circumstances, the impairment of all the higher functions which ensues when the balance is but a little disturbed in either direction move me to regard

thermogenesis as no mere by-end of our nature, no mere casual but unavoidable concomitant of chemical processes performed for another primary purpose. I would put it in the vital scale a little "higher" than circulation and respiration, and a little "lower" than voluntary muscular action. The motor function of the muscles is related to the highest centres; their thermogenic function connects them with the lower or animal centres; and the innumerable variety of causes which disturb or "dissolve" the controlling nervous mechanism, the readiness of "fever" to result from injurious influences of so many kinds, is the expression of the fact that the habit of stable temperature is, so to speak, recently acquired. As a last test of the "dissolution" hypothesis, consider what happens in recovery from a typical febrile attack. First, the thermolytic mechanism is waked to adequacy, there is a critical sweat or a relaxation of the vessels of the skin, and a gush of heat from the surface brings down the temperature with a run. But the thermogenic centres have not yet recovered, and the temperature will swing backwards and forwards for some days, and an epicritical excretion of urea takes place. Thermogenesis becomes less and less excessive, and is vigilantly counterbalanced by thermolysis; but thermotaxis is yet feeble. The patient's temperature is down, but it is still far from stable. As convalescence proceeds the stability increases, and at length thermotaxis, the first to be disturbed and overthrown, is the last to be restored.

The task which I proposed to myself is fulfilled; it was to set before you, if not an idea, at least the germ of an idea concerning the nature of fever. At every turn I have been indebted to the work of others; theirs are the pearls of observation and experiment which I have so inadequately displayed to you: only this tenuous filament of a theory on which I have strung them together is mine. But as some coherent theory is better than none,[2] if only as an aid to the ordering of our facts, and as I have found this manner of looking at fever useful to myself, not only as a pathologist but as a physician, I have ventured thus imperfectly to propound it. I have said nothing of the many clinical facts which might be adduced in support of the nervous origin of fever; Dr. Hale White has done so once for all in an excellent paper in the Guy's Hospital Reports (1884). I have said nothing of the therapeutics of fever, for indeed there is probably no Fellow of the College here present who could not teach me many lessons as to its treatment. And if, lastly, I have said nothing about etiology, that has at least this advantage, that you have been spared even a single allusion to bacteria.

CASE OF

CEREBRAL ABSCESS DUE TO OTITIS MEDIA,

UNDER THE CARE OF DR. BARR, AND OPERATED ON.

REPORTED BY

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SUMMARY.—*Abscess in temporo-sphenoidal lobe, due to septic otitis media; doubtful condition of lateral sinus; lungs involved; symptoms; operation; complete recovery.*

W. H——, a boy, aged nine years, was admitted into the Hospital for Diseases of the Ear under the care of Dr. Barr, on Jan. 13th, 1887, suffering from septic purulent otitis media and abscess of the brain, for the latter of which I was ultimately consulted, and afterwards operated upon him.

History.—The history prior to his admission into the hospital, as given by his mother in answer to questions, is as follows:—A month prior to the operation about to be described he complained one day of pain in the region of the right ear, which made him fret and prevented him from sleeping at night. On the following morning his skin was hot and dry, and he vomited, after which he became drowsy, being frequently awakened, however, by sudden startings and "crying fits" due to acute pain. The pain over the region of the ear, the drowsiness, the feverishness, and the occasional vomiting continued to characterise the first seven days of his illness. On the eighth day he had a rigor which lasted a quarter of an hour, in which he shook all over, and his teeth chattered. Between this time and his admission into the institution, he had in all six rigors, at intervals of about two days.

On the nineteenth day of his disease he was admitted into the Hospital for Diseases of the Ear. His condition was then as follows: He was a greatly emaciated child, having a pale, shrunken face, with livid lips, his upper one being covered by herpetic eruptions. He had a short catching cough. His axillary temperature was 100·8°; pulse 108. He was very drowsy, and complained of pain over the right ear, from which there was an offensive discharge. Dr. Barr found a perforation to exist in the upper part of the tympanic membrane, from which some purulent secretion was escaping, although the quantity was not great. There was defective hearing on that side, but the boy's mental condition prevented an exact estimate of the degree of deafness. For two days after admission (twentieth and twenty-first days of illness) his complaints of pain were not obtrusive, but the drowsiness continued. On the next day the pain had become aggravated, and he had a slight rigor. There was no evidence of an acute inflammatory process, or of retention of pus in the ear, to account for the pain, and there was neither redness nor swelling over the mastoid process. The temperature at this time was 99·6°; pulse 92. Dr. Barr perforated the mastoid process, and opened into the mastoid cells by chiselling behind the external auditory canal, and succeeded in passing a stream of antiseptic fluid through the antrum and tympanic cavity, out by the external meatus, and also in the reverse direction. A small quantity of purulent and caseous débris was washed out. A drainage-tube was introduced into the orifice in the bone through which an antiseptic solution was injected twice daily from the opening behind to the external meatus, and *vice versâ*. For two days subsequently no change was observed in his condition, but a slight rigor occurred on the second day after the perforation (twenty-fifth of the disease), while the pain in the head and the drowsiness became worse. On the twenty-ninth day of his illness a copious discharge of most offensive odour escaped from the ear. His tongue was red and smooth, and he refused to take food or drink. Pulse intermittent and irregular. A blush of redness frequently suffused the face.

On the thirtieth day of his illness Dr. Barr asked me to see a case in which he suspected cerebral abscess. The boy's state was then as follows: On approaching his bed one perceived a heavy fetid odour, traceable to the discharge from the right ear. One saw an extremely emaciated child, with a pale, greyish face, wrinkled skin, prominent cheek bones, and somewhat sunken eyeballs. He lay upon his right side in bed, his hand beneath his head, looking as if he were asleep with his eyelids half open. His lips were livid, and on the upper one herpetic remains appeared. His tongue was red and dry. Sordes covered the teeth. When an attempt was made to rouse him the right upper eyelid drooped, and there was a shade of passivity of the right side of the face, with a slight dragging of the angle of the mouth toward the left. The conjunctiva of the right eyelid was congested, and the lids were smeared with pus. The pupils were equal, about medium size, and responded sluggishly to the action of light. The veins over the right side of the head were congested, and stood prominently out on his shaven head. Pain on percussion was elicited over the right temporal, while percussion over the head generally was calmly borne. There was no œdema about the mastoid process. The right sterno-mastoid muscle was rigid. There was no hard cord-like feeling along the line of the internal jugular, though the external jugular was prominent. Acute pain was elicited on digital pressure just behind the origin of the sterno-mastoid, in the tissues near the exit of the vein which passes through the posterior condylar foramen. He was in a state of stupor, from which he could only be partially aroused, and not to such an extent as to give an intelligent answer to any question. His pulse was markedly slow, 50 to 60 per minute, and was feeble and intermittent. His limbs were extremely attenuated, and there was an irregular muscular tremor over the body generally, such as one frequently finds in approaching dissolution. He had a frequent cough, with purulent expectoration, which had an offensive odour, and there were moist râles over both sides of the chest. His bowels were and had been obstinately constipated. His urine was

[2] "We should follow the method of science, and investigate by the use of hypotheses. This may seem a strange remark to those who erroneously suppose an hypothesis to be a conclusion in which we may rest. It is only used for the methodising of work by observation and experiment."—(Hughlings Jackson: Bowman Lecture, 1885.)

free from albumen. It was somewhat difficult to believe that some weeks previously this boy was apparently stout and robust, and was vigorously engaged at playing football. There was a flow of excessively fetid fluid from the external ear, and as this was greater in amount than what would be likely to come from the antrum or middle ear, it was suspected that there might be a connexion between the middle ear and the intra-cranial cavity. There was no difficulty in concluding that this patient suffered from cerebral abscess, originating in septic otitis media. It was almost positive that it was situated in the temporo-sphenoidal lobe, and it probably had a tortuous and minute communication with the middle ear. It was feared that the lung affection was secondary to the septic absorption. The prognosis was almost hopeless, his youth being the one favourable point. Immediate operation was advised, and with Dr. Barr's concurrence it was at once carried out.

Operation.—The middle ear was washed out with an antiseptic solution, and rendered as nearly aseptic as possible. The scalp and parts around the ear were carefully washed with soap and water, then they were cleansed with turpentine, and finally with methylated spirit. An anæsthetic was administered. A half-inch disc of bone was removed from the squamous portion of the temporal, at a point an inch above and half an inch behind the centre of the external auditory meatus. The bone was normal; the dura mater was here slightly congested, and did not impart any brain impulse to the finger, neither was any discernible when the aperture in the skull was filled with fluid. When the membrane was opened and turned aside, the brain tissue immediately bulged into the osseous cavity and rose above its external level. The pia mater covering it was congested, and the brain substance had a yellowish-red appearance. A hollow needle was inserted into the brain in a direction which, if introduced far enough, would strike the eminence in the petrous bone above the middle ear. After it had penetrated the brain tissue for about three-quarters of an inch, there was a sudden escape of foul gas, accompanied by a bubbling sound and the escape of a few bells of fluid. Evidently the upper part of an abscess cavity had been tapped, and this contained fetid gas. The needle was inserted a little further, when pus flowed out. It was of an ordinary yellowish colour, and had a most offensive odour. After two drachms had slowly welled away, the aperture in the brain tissue was enlarged by forceps, and portions of the brain tissue, which had become necrosed, were removed. The latter consisted of shreds, two about the size of a large horse-bean, the others that of barley grains. On their removal more pus welled away. The cavity was then washed out with a saturated solution of boracic acid. After that, however, there was still a slow oozing of pus, along with the extrusion of minute shreds of brain tissue. It was evident that there was a considerable zone of purulent inflammation surrounding the abscess cavity, from which the pus continued to ooze. An aperture was then drilled into the base of the skull, just above the osseous boundary of the external auditory meatus, involving the squamo-petrosal suture. The dura mater was examined here and found intact. It was penetrated, and the abscess cavity was reached. A stream of boracic lotion was passed from this aperture so as to wash out the cavity of the abscess, and it was continued until it passed freely out by the upper opening. The current was then reversed. Even after that, when the drainage-tube was inserted, an oozing of purulent fluid took place into the tube. The ear was again cleansed. Chromicised chicken-bone drainage-tubes were introduced into both apertures. The parts were thickly dusted over with boracic acid powder, and dressed with sublimated wood-wool pads.

When placed in bed the patient was extremely weak, but rallied after the first few hours. A marked improvement was observable during the first week. The pulse became quicker and the temperature a little higher, both good signs. The face became brighter, the eyes clearer, the eyelids free from pus, the ptosis vanished, and the mental condition improved. After the first week, though kept on restricted diet, he improved in flesh, and continued subsequently to do so at a rapid rate. The wounds were dressed about once a week, when the parts were thoroughly syringed with saturated boracic solution, the drainage-tubes being gradually curtailed as the granulation tissue blocked them out. The softened brain tissue at the seat of the upper opening in the skull soon presented a mass of granulations, which increased in size, and rose into the aperture in the bone, uniting with the layer which formed on the exterior of the skull. Soon the two became blended together, and cicatrisation rapidly progressed. The chromicised chicken-bones answered admirably as drains, notwithstanding the action of the tissues, until they were removed, the upper one after fully five weeks. They also presented the advantage over silver ones, of being easily shortened when required.

The child put on flesh rapidly, and at the end of six weeks was quite plump.

Dr. Reid examined the eyes about the end of the fourth week after the operation, and could find no trace of optic neuritis. He was of opinion that optic neuritis could not have been present at the time of the operation, without having left some traces of its presence four weeks after.

On March 17th, Dr. Barr examined the affected ear. There was still slight purulent secretion coming from the granulation tissue in the middle ear. The hearing power was as follows: A watch heard forty inches from the ear in normal hearing was audible at a distance of five inches and a half. By bone conduction hearing was very good. A tuning-fork (C) applied to the middle line of the head was heard louder in the affected ear. Pressed in the mastoid process, the tuning-fork was heard much louder than when held near to, but not touching, the orifice of the ear. The results of these tests with the tuning-fork point to a normal state of the labyrinthine and nerve structures.

PYREXIA AND HYPERPYREXIA.

By T. J. MACLAGAN, M.D., M.R.C.P.,

PHYSICIAN IN ORDINARY TO THEIR ROYAL HIGHNESSES PRINCE AND PRINCESS CHRISTIAN OF SCHLESWIG HOLSTEIN.

(*Continued from page 566.*)

THE poisons of the specific fevers are minute organisms which are reproduced in the system during the course of the diseases to which they give rise. It is this reproduction of the organism in the system which causes the whole disturbance. Before it takes place there is no fever; during its continuance fever is the prominent condition with which we have to deal; after its cessation the fever rapidly declines. How does such a result flow from such a cause? How does the propagation of this poison in the system raise the body heat? It can be only in one of two ways—by impairing heat inhibition, or by stimulating the processes which result in heat production. In favour of the former view, it is difficult to find anything to say except that it is possible. As rise of body heat may be produced in this way (as, for instance, in injuries of the nervous centres), it is within the range of possibility that the fever poison might act by impairing heat inhibition. A very little consideration, however, will show that, though not much can be said for this view, a great deal may be said against it. According to this view of the matter, the poisons of the specific fevers exercise for the time a more or less paralysing effect on the heat-inhibiting centre—the result of which is, of course, rise of temperature. But if such were the case, this action ought to be more and more pronounced as the poison which gives rise to it increases in amount in the system, and the temperature should go on rising as the disease advances, getting daily higher and higher, and keeping pace in its rise with the increasing prominence of the other symptoms—wasting, prostration, delirium, &c. It ought, too, to remain high so long as the poison exists in the system. That is what ought to be if the rise of temperature were due to a direct toxic action of the poison on the heat-inhibiting centre. But the facts are quite the reverse. Take typhus and typhoid fever as typical instances. We find that in these fevers the temperature reaches its highest point very early in the disease—may be even before its characteristic symptoms are fully developed,—and is no higher after two or three weeks of fever than after five or six days of it, though the poison which causes all the disturbance is being largely reproduced during the whole time. Again, it is a fact that in each of the specific fevers the temperature returns to the normal while there is still in the system a large quantity of the poison of the disease, as is abundantly evidenced by the contagiousness of these maladies during

the early days of convalescence. Did that poison have a direct paralysing effect on the heat-inhibiting centre, and were the rise of temperature due to such an action, the body heat would rise with the increase of the poison, and fever would continue so long as that poison existed in any quantity in the system, and the temperature would not fall till it had been eliminated. As it is, the temperature does not rise after the first five or six days, and there is good reason to believe that the system contains more of the poison at the commencement of defervescence, when the temperature is rapidly falling, than it does during the first few days of the fever, when it is rapidly rising.

The evidence is all opposed to the view that the increased body heat of the specific fevers is of neurotic origin—due to the direct action of the fever poison on the heat-inhibiting centre. Indeed, nothing worthy of the name of evidence can be adduced in support of such a view, and there remains for us nothing but to reject it. It is quite otherwise with the view which attributes the rise of temperature to increased production of heat. What we have now to do is to consider how such increased production is brought about. It will facilitate our inquiry if we bear in mind, what has already been insisted on, that heat is essentially an excretory product, destined for elimination, and that it is not the only such product which is in excess in fever. Fever does not consist solely in rise of temperature; it is a collection of different and various phenomena, all of which are abnormal, and the coexistence of which in the system constitutes a condition which is conveniently characterised by the term "fever." In considering the pathogenesis of this condition, no one of its essential phenomena should be divorced from the others; they are all linked together by the bonds of a common causation, and must therefore be considered together. The specific poison of the disease is the cause which gives rise to each of the specific fevers; that poison must, therefore, be, directly or indirectly, the cause of the individual phenomena which go to constitute the fever. The question for consideration is not the competence of such a cause to produce such a result, for that is demonstrated by the occurrence of the fever, but its mode of action. How does the propagation of the contagium in the system give rise to the thirst, dry skin, quick pulse, rise of temperature, waste of tissue, and disturbance of the nervous centres characteristic of these maladies?

In investigating the action of ordinary poisonous and medicinal agencies, we have to consider only their action on one or more organs, or on the system generally, and have to deal only with the action of the quantity which has been swallowed. It is otherwise with the poisons of the specific fevers. Here we have to deal with an organism which is reproduced in large quantity in the system, and which in its growth and reproduction consumes the same materials as the tissues themselves. All organisms have a definite action on their environment. This action (in the case of such organisms as those of the specific fevers) essentially consists in the consumption of nitrogen and water. The environment of these organisms is the blood and tissues of the human body. The action of these organisms on the body therefore essentially consists in the consumption of its nitrogen and water. As nitrogen and water are the chief elements requisite to the nutrition and building up of the tissues, and as these tissues are dependent for their continued vitality and functional activity on a due supply of nitrogen and water, it is evident that the growth and reproduction in them of millions of organisms which consume these elements must have a seriously disturbing action on the whole system. It shall be my endeavour to show that all the essential phenomena of the specific fevers are attributable to this action—to the consumption by the poisons of these diseases of nitrogen and water destined for the nutrition of the tissues.

The essential phenomena of fever are:—1. Wasting of the nitrogenous tissues. 2. Increased consumption of water. 3. Increased elimination of urea. 4. Increased rapidity of the circulation. 5. Preternatural heat. What we have to do is to apply this view of the mode of action of contagia to the explanation of each of these phenomena.

All the tissues, nitrogenous and non-nitrogenous, waste during fever. In spite of all that is done to support him, the fever patient rapidly emaciates, and wastes almost visibly before us. By two weeks of fever a strong, robust muscular man may be so reduced as to be unable to sit up in bed, or even to turn round in it. He may have administered to him during that time a quantity of milk and beef-tea which, were he in health, would tend to make him fatter and to increase his bulk. But the fever process which is consuming him more than counterbalances our efforts to keep him up. Under it he rapidly wastes. What is this process? and how is such wasting brought about? The one cause to which must be ascribed this, as all the other phenomena of the form of fever with which we are now dealing, is the poison which gives rise to the disease. This poison is an organism which is largely reproduced in the system during the course of the malady to which it gives rise, and which in its growth necessarily consumes a large quantity of nitrogen. The only source whence it can get this is one or other of the nitrogenous elements of the body. There exists in the system no spare store of nitrogenous material, but only what suffices for the wants of the system itself. The nitrogen requisite for the growth and propagation of the contagium must therefore be taken from this source, and must represent a loss to the tissues, which is directly as the extent to which the contagium is reproduced.

This consumption of nitrogen by the contagium is one of the main causes of the wasting of the nitrogenous tissues which takes place in the course of the specific fevers. But nitrogen exists in various forms and combinations, liquid and solid, in the body; and we have to consider at what point or points in its changing course through the system it is most likely to be laid hold of by the contagium. Voit has distinguished between the fixed or organ albumen which enters into the composition of the solid tissues and changes slowly, and the circulating or store albumen which is contained in the blood and fluids of organs, and very readily undergoes change. But a still further distinction must be made. The circulating albumen must consist of two parts—a *constructive* and a *retrogressive:* the former derived from the assimilated ingesta, and destined for the nutrition and building up of the tissues; the latter derived from the retrograde metamorphosis of these tissues, and destined for excretion. The former is converted into solid nitrogenous tissue; the latter is converted into urea in the urea-forming glands, and as such is eliminated by the kidneys. Nitrogen thus exists in the system in four different forms—as constructive store albumen, as solid nitrogenous tissue, as retrogressive store albumen, and as urea. From which of these is the contagium most likely to takes its nitrogen? Two things are likely to determine this point: *first*, the facility with which the nitrogen is yielded up by each of these compounds; and secondly, the special fitness of each for the purpose for which it is wanted by the contagium. The most stable of the nitrogenous compounds, and that which would least readily yield up its nitrogen, is the fixed or organ albumen; that is, therefore, the source whence the contagium is least likely to obtain its nitrogen. The increased wasting of these tissues would, on the first glance, point them out as its probable source; but such a result would equally follow the appropriation by the contagium of the nitrogen destined for their nutrition and repair.

Next in stability is the urea; next to the organ albumen, it is therefore the least likely source from which the contagium should get its nitrogen. But there are more cogent reasons for rejecting it. First, the consumption of the nitrogen of the urea would not lead to wasting of the nitrogenous tissues—would not, indeed, have any effect on these tissues; for nitrogen does not enter into the combination which results in the formation of urea till it has served all the purposes for which it was taken into the system, and is about to be eliminated. Indeed, it takes the form of urea only for that purpose. Secondly, the consumption by the contagium of the nitrogen of the urea would necessarily lead to greatly diminished excretion of that substance by the kidneys; but during the specific fevers there is increased elimination of urea. These reasons make it certain that the urea is not the source whence the contagium derives its nitrogen.

The only other available source is the store albumen. This consists of two parts—a constructive and a retrogressive. From one or both of these the nitrogen of the contagium must be derived. So far as the readiness with which their nitrogen is yielded up is concerned, the two are pretty much on a par; each is a transition compound, and has for one of its leading characteristics a readiness to undergo change and to part with its nitrogen, the one yielding it up to the albuminous tissues, the other parting with it in the gland cells which form it into urea. Any advantage which does exist is on the side of the constructive store albumen; for

while this is ever undergoing change, and constantly giving up its nitrogen to the albuminous tissues in all parts of the body, the retrogressive yields up its nitrogen only in the urea-forming glands. Now, there is no reason to suppose that the growth of the contagium takes place only in these glands, or that it gets its nitrogen in them only. On the contrary, there is good reason to believe that the contagium appropriates nitrogen all over the body, and in all its tissues.

But there are more cogent reasons for rejecting the claims of the retrogressive store albumen—the same reasons, indeed, which led us to reject those of the urea. The nitrogen does not go to form retrogressive albumen till it has served all the purposes of the tissues; it is no longer required by them—is, indeed, rejected by them,—and assumes this form only that it may be conveyed to the glands, in which it is changed into urea for the purposes of elimination. The retrogressive store albumen is as essentially an excretory compound as is urea. The consumption of its nitrogen by the contagium, therefore, could not cause wasting of the nitrogenous tissues; it would lead only to decreased formation of urea. But all this is exactly the reverse of what takes place: the tissues do waste, and there is increased formation of urea. The retrogressive store albumen is evidently not the source whence the contagium derives its nitrogen. The only remaining source is the constructive store albumen; and a little consideration serves to show that it is also the one whence the contagium would by preference naturally take its nitrogen. The constructive store albumen is the source whence is derived the nitrogen destined for the building up of the nitrogenous tissues; it is only in it that they get nitrogen in the form suitable for their repair. Now, it needs no argument to show that the process by which the protoplasm of the contagium is formed bears a much closer analogy to that by which the albuminous tissues are built up than it does to any other action which goes on in the system. Each is a constructive step, and essentially consists in the appropriation by living protoplasm of the elements requisite for its growth. The particular nitrogenous compound, which serves to build up the protoplasm of the tissues is likely also to be the one which would best serve to build up that of the contagium. Every reason and argument thus lead to the conclusion that the source whence the contagium derives the nitrogen requisite for its growth is the constructive store albumen. The reproduction of the contagium in the system during the course of the specific fevers results in the consumption by it of the nitrogen of the constructive store albumen. This represents a direct loss of nitrogen to the nitrogenous tissues, and such loss is one of the primary causes of that rapid wasting of these tissues which forms one of the characteristic features of an attack of the specific fevers.

But though a primary, it is not the sole agency in producing this loss of bulk. All living and active protoplasm consists mainly of water. Of 100 parts of human flesh, 74 consist of water. A proper supply of water is, therefore, as requisite to the nutrition of the tissues and to the renewal of their protoplasm as is a due supply of nitrogen. But water enters as largely—probably even more largely—into the composition of the protoplasm of the contagium, and is therefore consumed by it during its growth. The growth of the contagium in the tissues means a large consumption of the water as well as of the nitrogen destined for their repair; and this appropriation by the contagium of the water destined for them is probably as potent a factor in the production of that wasting of the tissues which we are now considering as is the consumption by the same agency of the nitrogen of the constructive store albumen. Certain it is that this double loss to the tissues—the loss of water and the loss of nitrogen which must result from the growth of the contagium in the system—affords a reasonable and adequate explanation of the rapid wasting of the tissues which characterises the course of the specific fevers. This consumption of water by the contagium serves also to explain some of the other characteristic and essential phenomena of fever.

(To be concluded).

THE annual meeting of the supporters of the Poplar Hospital for Accidents was held on the 16th inst., when satisfactory financial and medical reports were presented.

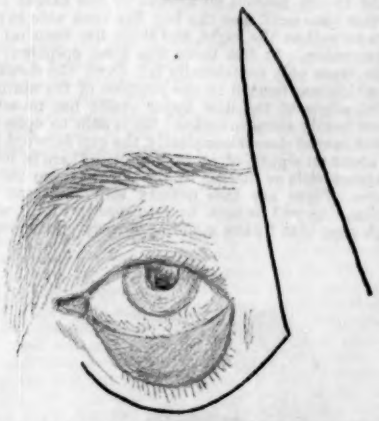
AN OPERATION FOR THE CURE OF ECTROPION.[1]

BY N. DAVIES-COLLEY, M.C. CANT.,
SURGEON AND LECTURER ON ANATOMY, GUY'S HOSPITAL.

I DO not know whether the mode of procedure adopted in the treatment of the following case is new, but, as I can find no mention of it in our text-books, I venture to bring it before the profession, in the hope that it may prove serviceable where the ordinary operations for the relief of this unsightly deformity have failed.

My patient, Michael R——, was a delicate boy of three years of age, who was admitted under my care into Guy's Hospital on Oct. 25th, 1883, with necrosis of the superior maxilla following measles. The left lower eyelid was then much everted, and it became still more so after the removal of sequestra from the front and outer walls of the antrum. In January, 1884, the eyelids were pared and stitched together, and an incision was at the same time made below the lower eyelid to free it. For ten months the child went about with the eye thus closed up, but at the end of that time, when, at the urgent request of the friends, the union between the edges of the lids was divided, immediately the eversion of the lower lid returned. In a short time he was found to have an ulcer of the cornea and considerable conjunctivitis, as the result of the exposure of the eyeball. In January, 1885, I again operated in the same way as before, but this time, in addition to the paring and uniting of the

FIG. 1.

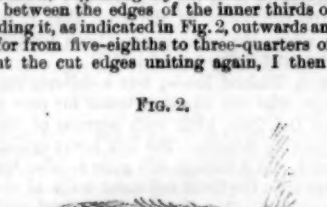


lids, I took a flap more than two inches long, as indicated in Fig. 1, from the temple, and stitched it carefully into the gaping wound produced by the incision necessary to free the lower eyelid. The eversion was so great that I had much difficulty in paring the edge of the lower lid, for it lay at the bottom of a groove which intervened between the prominent granulations of the palpebral conjunctiva and the skin of the cheek. I was disappointed to find, at the end of a few months, that the flap which I had transplanted had not, as in many other cases in which I have operated similarly before, taken the place of the skin of the lower eyelid, but that although it had united perfectly, it had been drawn downwards by the contraction of the soft parts, so as to form the integument of the upper part of the cheek, while the upper eyelid had been elongated, so that its lower border was about on the level of the floor of the orbit. There was a small chink still patent between the inner thirds of the eyelids, through which the boy was able to see a little, but it was evident that if this chink were enlarged by the division of the artificial union between the lids, the eversion of the lower lid would return, and it was

[1] A paper read at a recent meeting of the Medical Society of London.

probable that in addition to the deformity the boy would also suffer as before from the exposure of the cornea and conjunctiva. The only way which I could devise for restoring the use of the eye without producing these results was to divide the upper eyelid, and to convert that portion of it which had for some time occupied the position of the lower eyelid into a substitute for it. Accordingly, in May, 1886, sixteen months after the previous operation, I divided, under ether, all the structures of the upper eyelid with a pair of scissors, beginning my incision at the outer end of the chink between the edges of the inner thirds of the lids, and extending it, as indicated in Fig. 2, outwards and slightly upwards for from five-eighths to three-quarters of an inch. To prevent the cut edges uniting again, I then attached

FIG. 2.



the skin to the mucous membrane by fine catgut sutures. From that time until now the boy has been able to use the left eye as well as the right, and there has been no return of the eversion. At first there was some epiphora, but of late the tears only occasionally fall down the cheek. The angle which was formed by the junction of the normal and artificial edges of the new upper eyelid has rounded off, and now hardly attracts notice. He is able to open his eye well, but cannot close it completely, the gap between the lids being about an eighth of an inch wide. There is, however, no conjunctivitis or disease of the cornea from this slight exposure. There are two defects still apparent in his condition. As will be seen by reference to Fig. 3, which is a rough copy that I have made of a very good portrait of

FIG. 3.

him, taken by my late dresser, Mr. Theodore Fisher, some eyelashes emerge from the lower border of what is now his lower eyelid, and there is a small gap, about one-eighth of an inch broad, which must have remained ununited when the eyelids were stitched together two years ago. The great tension of the parts has produced a triangular aperture below the gap, through which a patch of conjunctival granulations can be seen. When the boy has a cold, a few tears escape by the aperture and cause a slight epiphora. I hope on some future occasion to remove these slight defects by a further operation. If I had from the first intended to divide the upper eyelid, it would have been easy to produce a better result by paring away the eyelids so freely as to remove the eyelash bulbs before inserting the stitches. Moreover, I do not think that the preliminary transplantation of a flap is at all necessary to the operation.

Harley-street, W.

RHEUMATIC CEREBRO-SPINAL INFLAMMATION.

BY J. BROWN SIM, M.D., L.R.C.S. EDIN.

THE following case presents many points of interest, as the supervention of grave changes in the cerebro-spinal system are not commonly met with in the course of a rheumatic affection. In this case that disease could never have gone beyond the subacute stage; and beyond the suspicion that the mental faculties had not for some time been quite so sharp as they previously had been, there was no apparent cause why symptoms of so serious and grave a character should have been set up. It possesses many features of resemblance to the case of disseminated myelitis reported in THE LANCET of Nov. 13th of last year, as having been brought before the Royal Medical and Chirurgical Society by Dr. Thomas Barlow, where symptoms of a somewhat similar character had occurred during an attack of measles; and it will serve to point out that the liability to the occurrence of such complications is not confined to the acute specific fevers. Without attempting any explanation of them, I will proceed to give the clinical notes, only drawing attention to the transient character of the first paraplegic attacks, and the subsequent rapid progress of the disease to a fatal termination. I have to express my obligation to Dr. Ransom for his kindness in supplying me with the early notes of the case.

H. S. M——, aged seventeen, occupied as a clerk in a counting-house, first consulted Dr. Ransom of Nottingham on October 30th, 1886, complaining of his left knee-joint being enlarged, and of a swelling on the dorsum of the left hand. On inquiry it was found that the patient's father had had several attacks of rheumatic fever, and frequently the same malady in a subacute form. In other respects the family history was a good one. The patient had about a year before an illness accompanied with pain and swelling of the left knee-joint, which continued for some weeks, but did not lay him up in bed, and from which he completely recovered. For a month previous to his visit to Dr. Ransom the patient had a swelling on the dorsum of his left hand. This had become much reduced in size, but at the time of his visit it was readily felt as a firm substance about the size of half a nutmeg, and apparently deeply placed near the bone. It had been painful, but was not then so. A week previously the left knee-joint again swelled, and was slightly painful and tender. Dr. Ransom detected fluid in this joint. There was also some pain in the back and head. But he did not appear to be feverish, or to suffer much general malaise. Treatment consisted of salicine and iodide of potassium. On Nov. 8th the patient again visited Dr. Ransom, who noted that the symptoms were a trifle better all round. On Nov. 13th the father called on Dr. Ransom and reported that on the afternoon of the 11th his son had suddenly lost the power of moving his legs, and had remained in this state for about a quarter of an hour; that he then recovered, and walked upstairs. That again, about two hours previous to his call on Dr. Ransom, a similar temporary loss of power had come on and passed away. The same afternoon the patient was seen at his own home by Dr. Ransom and myself. He was in bed, and was noted to be thin, pale, and overgrown for his age. It was found that he had completely recovered the use of his legs, and that sensation was normal, as evidenced by his being able readily to localise a pinch or a light touch. The swellings on the hand and knee had almost completely disappeared. On asking the patient to describe the seizure on the 11th, he had at first no recollection of it. On being reminded by his mother, he was then able to recall and give a fairly connected account of it. He described the attack as coming on gradually, beginning with a feeling of numbness in his legs, and passing on to entire inability to move them. He thought it would be quite fifteen minutes in reaching this stage. There was also partial but very slight loss of power in both arms. Since this seizure he was noticed to have some difficulty in passing urine, and to fail in obtaining much relief after doing so. The second attack of paralysis was described as similar to the first, but only affecting the legs, and did not last long. He had not much pain, but complained of some over the region of the stomach. Examination of the spine failed to show any tenderness. The heart

and lungs were both normal. The bladder contained a good deal of urine. The mental faculties were clouded, the patient often requiring to be helped out with his facts by his friends. He was stated to have been a bright, lively, intelligent boy, but his father thought him to have been less so for some months past.

Nov. 14th.—10 A.M.: Patient's mind appears to be more hazy this morning. He states that he has had a good night, and has no pain except in his abdomen, which he refers now to the hypogastric and now to the left hypochondriac regions. His memory is worse, as shown by his not remembering that two doctors had been to see him the previous evening. His friends state that he appeared to suffer acutely for four hours during the night, but this he had no recollection of himself. After this attack of pain he appeared to become hot and feverish. He forgets what month it is, and though he made inquiry as to what the thermometer was for when it was put into his axilla, yet he had no recollection of having seen it when it was taken out again. He had also an illusion that there was a clock on the wall. Patient had passed thirty-one ounces of urine during the night, but as his bladder still seemed distended a catheter was passed and thirty-one ounces withdrawn. On examination afterwards the urine was found quite free from albumen. Temperature 100·2°; pulse 114. At 4 P.M. I was summoned to see him, as he had become very violent. He was struggling so much that it was with difficulty he could be kept in bed, and he answered questions very incoherently. Temperature 100·2°.

15th.—10 A.M.: Patient had slept one hour and three-quarters after a sedative prescribed at the last visit, but since then he has been very restless, biting his upper lip, which was cut and much swollen in consequence. He has been passing urine in bed. Temperature 99·8°; pulse 124. Catheter passed and thirty-four ounces of urine withdrawn. —7.30 P.M.: Patient has passed a quiet day, taking liquid nourishment moderately well, but remaining unconscious. He has not been noticed to move his legs to-day. Tickling or pinching them makes no impression. He moves his arms freely, but with this exception he remains in the position he is placed in till he is moved into a fresh one. There has been no urine passed during the day. Twenty-three ounces withdrawn by the catheter. Temperature 98·4°; pulse 126.

16th.—10 A.M.: Patient has passed a quiet night, but was never conscious. He has taken a moderate quantity of milk and beef-tea. Coma this morning is not so profound, as he replies on being asked a question in a loud sharp tone, but could not recognise his friends. No urine passed during the night; thirty-one ounces withdrawn by the catheter. Temperature 102°; pulse 108.—7.30 P.M.: Patient has been comatose all day, only occasionally replying to a question; but has taken more nourishment. He has not been observed to move his legs at all to-day, though it has been specially watched for. He has been perspiring freely, and has been frequently belching. The urine is still retained; twenty-four ounces withdrawn by the catheter. Temperature 103°; pulse rapid, but difficult to count, as he is constantly moving his arm about.

From this time the coma rapidly became more profound, death taking place about 11 A.M. on the 17th, nearly six days from the time he had his first attack of paraplegia. No post-mortem was obtained.

Nottingham.

HULL ROYAL INFIRMARY.—The annual meeting of the governors of this institution was held on the 16th inst., when it was reported that, owing to the transition state which at present existed, it was difficult to frame any report as to the work that had gone on during the past year, or to compare the accounts with those of other institutions. The alterations of and additions to the building were reported to be nearly completed. Dr. Macmillan announced his intention of presenting to the infirmary, as a jubilee offering, a hospital ambulance carriage for the better conveyance of patients to the institution.

THE LUNACY BILL.—At the meeting of the Exeter Town Council on the 23rd inst. it was decided to communicate with the Lord Chancellor, with a view of securing the introduction into the Lunacy Bill now before Parliament of a clause authorising the repayment of money borrowed for building the asylum, to be spread over sixty instead of only thirty years. The Council has just spent £90,000 on a new asylum, and on the present terms of repayment the sum required entails a very heavy addition to the rates

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

AN OVERDOSE OF ESERINE.

By ANDREW DUNLOP, M.D.,

CONSULTING PHYSICIAN TO THE JERSEY GENERAL DISPENSARY AND INFIRMARY.

A LADY of about sixty years of age, who had slowly advancing cataract in the left eye, and incipient disease of the same kind in the right, began, early last October, to suffer from irritation of the conjunctivæ. The eyes were suffused and the conjunctivæ often somewhat injected, and the discomfort was increased by fatigue, exposure to cold, or strong artificial light. The patient consulted an oculist in London in November, and a variety of constitutional and local remedies were employed without any very satisfactory result. On the 19th of January my friend Mr. Hind saw her with me, and recommended the use of eserine, with the view of lessening the amount of light passing into the eye. Accordingly a solution of the strength of one grain to the ounce was prescribed, and a drop was ordered to be placed in the eyes twice a day. At about 4.30 the same afternoon the first application was made, and a small drop of the solution placed in each eye. A good deal of smarting and lacrymation followed, and as this passed off, in about a quarter of an hour severe clonic spasm of the eyelids set in, the upper eyelid, as the patient described, falling down on the lower every few seconds. About a quarter of an hour later a feeling of spasmodic stiffness in the lips, especially the upper, set in, and soon there was the same sensation under the jaw on the left side. Within an hour there was a feeling of tremor or spasm, but without any actual muscular movements in the arms and thighs, and at the same time there was a sensation of pressure on the eyeballs and of weight and pressure within the head. The patient also began to suffer from some mental confusion, and her memory was impaired. By 11 P.M. the movements of the eyelids had diminished considerably, but the other symptoms had altered very little. She slept uneasily waking at frequent intervals during the first part of the night, and when she awoke was conscious of the same sensation, though in diminishing degree. In the morning the muscular sensations had disappeared, but she felt weak and shaken. I saw her a little before noon on the 20th, when I found the pupils contracted to a fine point, and the conjunctivæ a good deal injected. All the spasmodic muscular feeling had disappeared, but she complained of the pressure on the head and on the eyes. She said there was some mental confusion and a general feeling of weakness. Next morning, the 21st, the pupils were still minutely contracted, and as she still complained of the pressure on the balls I ordered a weak atropine lotion, at the same time advising her to go out for a drive. On the morning of the 22nd she told me that after her drive, and before using the atropine, the weight in the head and the pressure on the eyeballs passed off, and that she felt stronger and better. The pupils were now pretty fully dilated after two applications of the atropine lotion. When I saw the patient on the 20th I was much astonished at the effects produced by a comparatively weak solution of eserine, and after reassuring myself by an examination of the prescription that no mistake had been made in ordering it, I thought that possibly the unusually vigorous action of the drug might be due to the constitution of the patient, who was exceedingly susceptible to the action of some nervine excitants. A visit to the druggist who dispensed the prescription fully explained the matter, however, for it appeared that by mistake he had made the solution of the strength of one grain to the *drachm* instead of one grain to the *ounce*. I have thought that this case might be worth recording, as such an accident cannot often occur, and as the symptoms reminded one more of an overdose of strychnine than one of its antagonistics, the Calabar bean. It appears, however, that in poisoning by physostigma muscular twitchings and tremors often take place before relaxation sets in.

Jersey.

ABDOMINAL SECTION FOR PYO-SALPINX AND SUBPERITONEAL MYOMA; SUBSEQUENT HÆMORRHAGE, REQUIRING RECOURSE TO HYSTERECTOMY; RECOVERY.

BY GEORGE ELDER, M.D., C.M. GLAS.,
SURGEON TO THE SAMARITAN HOSPITAL FOR WOMEN, NOTTINGHAM.

MRS. R——, aged forty-two, living in Nottingham, had been an out-patient of the Samaritan Hospital for Women off and on for many months, complaining not so much of pelvic troubles as persistent and severe gastric symptoms, always aggravated by movement, sexual intercourse, and menstruation. These symptoms were nausea, occasionally sickness, and extreme pain after food; and so much had the reflex mischief overshadowed and masked the cause that several practitioners had treated her for stomachic ulceration. The pelvic trouble was diagnosed a considerable time before the consent of the patient could be obtained to the operation, and it was only after treatment by rest &c. had been long and fairly tried that the pains and induced weakness brought her to see the necessity of having something of a radical nature performed.

On Nov. 1st, whilst under the influence of ether, abdominal section was performed, and a firmly adherent left pyo-salpinx removed, and also a myoma about the size of a Tangerine orange, with a long thin pedicle, which was transfixed and tied by a Staffordshire knot. In tightening the silk a crack was made in the peritoneal coating of the uterus, from which oozing took place. Before the completion of the operation this was stopped by sponge pressure, but a drainage-tube was placed in position, to register, so to speak, the condition afterwards. Several times during the day recently effused blood, in no considerable quantity, but still showing no disposition to cease, was withdrawn by the syringe, and in the evening the abdomen was again opened. Ineffectual attempts to arrest the oozing by means of the actual cautery and the continuous suture were made; so after tying off the left broad ligament no difficulty was found in getting the wire of Koeberlé's serre-nœud round the cervix, and constricting it sufficiently to stop all hæmorrhage.

A good stump was obtained; the cervical canal was thoroughly scooped out and swabbed with strong carbolic acid; pedicle pins were applied, and the abdominal wound brought together and well round the stump, no drainage-tube being used. After rubbing the surface of the stump thoroughly with solid perchloride of iron, it was dusted with iodoform, and this was continued almost entirely till the clamp came off on the seventeenth day. The patient made a very good recovery. The highest temperature registered was on the evening of the fifth day, when it was 100·9°. On Jan. 9th she was up and getting about the house, with a small granulating sore left, which was rapidly lessening.

Remarks.—The prominence of the reflex symptoms was in this case the reason of mal-diagnosis and misdirected treatment, as it is in many others, on account of the insufficient appreciation which exists of the close intimacy there is between pelvic troubles and gastric disturbance. One very serious defect of Koeberlé's clamp came out very markedly in this case, and this is the impossibility of sufficiently constricting a thin stump by its means. A modification with an endless screw would be a great gain, and Mr. Lawson Tait's practice of removing it after a few days must of necessity do much to lessen the pain to the patient and to minimise the risk.

Nottingham.

ACUTE GASTRIC ULCER; HÆMATEMESIS; MELÆNA; FISTULA IN ANO; DROPSY; RECOVERY.

BY WILLIAM FRASER, M.B. DUB.

ALBERT K——, aged thirty-seven years, a wheelwright, of short, stout build, with a good "corporation," a good liver and moderate drinker, (beer or cider), left work on the evening of Dec. 31st, 1885, complaining of a severe pain across the bowels. This was an old complaint of his, but now it seemed sharper than usual. When seen, the pain was just below and under the end of the sternum, ranging across and around the two sides; tender on pressure; bowels costive and very flatulent; tongue something like a ploughed field, with a dirty greenish brown fur on it. He continued to get worse. Vomiting set in; would eject any and everything, and was in great pain till the stomach was emptied. This pain coming on immediately after food made me suspect that I had to deal with an ulcer of the stomach, and to that I pointed my treatment. Things did not improve. Some days the man felt better and quiet, then went back to the old state. The pain continued, with vomiting now and then, and he lost flesh fast. His face was the picture of misery, and was getting haggard. His tongue remained the same, but looked glazed. On Jan. 28th, 1886, I suggested a consultation with Dr. Ramsay of Torquay, who agreed with my diagnosis. The patient was in great pain on the 29th and 30th, which seemed more violent and less controllable than before, but next day was easier. On Monday, Feb. 1st, about 2 P.M., I was suddenly called, and found him lying stretched on the floor, with three ordinary-sized chamber vessels nearly full of a reddish-black treacly fluid, having a horrid stench; two came from the bowels, and one from the stomach. He was at once placed in bed. He was quite cold, pallid, pulseless, and speechless—more dead than alive. Now came the critical period of the case. I prescribed lead (half a grain) and opium (quarter of a grain) every hour for two days and nights, then every three or four hours if required; ice both to suck and to be applied to the stomach. The watching and anxiety during this week cannot be described; it was like watching the dead, and at times it was even hard to say that he was living. The melæna did not return, but the hæmatemesis continued till 5.30 A.M. of Feb. 4th: he was now better, the pain had ceased, and things seemed favourable, when on the morning of the 9th he threw up some acid material, and at 11 A.M. he again vomited blood, this time fresh, which continued all that day and the next. The end seemed to have come; still we fought against it, and he again rallied. When seen on Feb. 12th the bowels had not been open for the previous ten days. I ordered an injection of a pint of warm gruel; he at first passed about a tablespoonful, but a little time afterwards a quantity of bloody watery material came away. I can best describe the amount by giving his wife's words: "I had a pair of blankets, a small blanket, a large quilt four or five times doubled, and right through the bed-tick, saturated." He remained in a stupor all the afternoon and night, but towards the morning he rallied again and went on to all appearances *in statu quo*. During April he improved; there was no more hæmorrhage, no pain, and the vomiting had ceased. He had been for the last few days complaining of pain about the rectum, when on examination I found that the poor fellow had added a fistula to his previous troubles; it did not communicate with the rectum, and was about an inch and a half deep; the pain of this dulled the ulcer, which had been progressing very well—in fact, healing up. This fistula with ordinary care and boric acid compresses healed up in due time, so that on April 24th he got downstairs for the first time. General dropsy now supervened, which was due to debility, for as he became stronger this disappeared. Convalescence was very slow, he being reduced to a skeleton. On June 16th he was sent to Brixham for change of air, and on July 12th he resumed work.

The treatment pursued during this long illness and the few headings I give do not represent the amount of medical and dietetic care he required, for, as everyone knows, the number of changes rung during an acute illness is legion. At the outset we used bismuth both solid and the liquor, with dilute hydrocyanic acid and nux vomica, sometimes adding morphia or chloral. Blisters were applied to the stomach, and then dressed with morphia ointment. The treatment for the hæmorrhage I have stated above. Later on iron and arsenic were given for fully three months.

Ashburton.

PRIMARY HUNTERIAN CHANCRE OF THE CHEEK.

BY H. MITCHELL, B.A. CANTAB., M.R.C.S.,
SURGEON, ARMY MEDICAL STAFF.

THE following case may be of sufficient interest to justify its publication in THE LANCET.

Early in December last a soldier twenty years of age was admitted into hospital with an ulcer in the middle of the right cheek. In character this ulcer was circular, about the size of a sixpence, shallow, clean cut, but the edges not

undermined; the surface had a glazed appearance, and secreted a very little watery discharge; its base was surrounded by slightly indurated tissue, which was somewhat inflamed. At the angle of the jaw on the same side was an enlarged gland, not inflamed, about the size of a bean. As the situation of the ulcer corresponded with the position of the chain of the man's helmet, it was thought probable that either the metal of the helmet chain or some substance used in cleaning it had irritated an abrasion on the cheek and so caused the ulcer. The man had no constitutional symptoms. The ulcer was considered to be a poisoned wound, and treated accordingly, first with poultices and hot fomentations, then, when the inflammation had subsided, with diluted red oxide of mercury ointment. In less than three weeks it had quite healed; the slight amount of induration at its base had disappeared; the gland, however, remaining as before, and showing no signs of inflammation. The man was about to be discharged from hospital, and was being examined as to his general condition for this purpose, when a copious rash was seen on his chest, back, and abdomen, extending also to the arms. The rash was mainly papular, but squamous and roseolar in places, and markedly polymorphic; in appearance and colour it was undoubtedly a secondary syphilitic eruption. There was no previous history of syphilis, or any appearance or traces of a sore in the usual situations, and the man stated that he had never had one. The patient was kept in hospital and treated with perchloride of mercury and small doses of iodide of potassium, and by Jan. 20th the rash and the enlarged gland were nearly gone.

The interesting points of this case are—(1) the very unusual situation of the infecting sore; and (2) the early appearance of secondary symptoms, which is probably accounted for by the very free blood-supply to the part. The sore was probably caused by an abrasion on the cheek becoming accidentally poisoned by syphilitic virus.

Portland.

ON THE INFLUENCE OF SALICYLIC ACID UPON ACUTE RHEUMATISM.

By T. F. RAVEN, L.R.C.P. LOND.

IN the treatment of acute rheumatism with salicylate of soda or potass very different results are obtained. Sometimes the remedy acts in a wonderfully satisfactory way, and in a few hours the patient is free from pain, and in a few days convalescent. At other times, but fortunately less frequently, the drug produces no beneficial effect whatever. Until lately I have been at a loss to distinguish the cases amenable to treatment with salicylic acid from those which give no results, but a recent experience has given me a clue which may possibly be of some value. During the prevalence of an epidemic of membranous tonsillitis in an institution, three severe cases of acute rheumatism, with cardiac complications, presented themselves, certainly resulting from the prevalent poison. In the treatment of these cases salicylate of soda entirely failed either to reduce temperature, to relieve pain, or to arrest the disease. I was so struck with the failure of the drug in three successive cases that the possibility occurred to me of explaining it by the origin of the disease. It may be that the acute rheumatism which results from zymotic influences is different in its nature, though not apparently in its symptoms, from that which arises from cold and damp.

Broadstairs.

AN ENORMOUS CALCULUS.

By E. COLSON, M.R.C.S.,
SURGEON-MAJOR.

JABTER NASSIR, a Bedouin Arab who had come eight days' journey to Hodeedah, and thence by sea to Aden, presented himself at the Civil Hospital for treatment for calculus of the bladder. On Feb. 1st, when on the operating table, the stone was carefully examined with the sound and per rectum. Having come to the conclusion that the stone was a very large one, I determined on the supra-pubic operation. The bladder was injected with twenty ounces of warm water, which raised it well above the pubes. An incision about three inches in length was made vertically above the pubes, and the parts carefully dissected down until the veins above the bladder were exposed. Whilst separating these with a director, it passed through into the bladder, which appeared soft and friable. The finger was immediately introduced through the opening, and an enormous stone was found to occupy the cavity of the organ. To extract this the original incision had to be much enlarged, and with great difficulty the stone was removed. This was found to weigh 9½ oz. avoirdupois, and measured 7½ in. in its horizontal and 8½ in. in its vertical circumference. A large catheter was fastened in the bladder per urethram, and the wound in the skin closed and dressed antiseptically. The man recovered well from the immediate effects of the operation, and was doing well also in the evening. I regret to say he died suddenly on the following morning. No post-mortem examination was made, as the Arabs object to such a measure. The distension of the bladder alone appeared to answer every purpose, as the peritoneum was not seen from first to last. The man said he had had the stone for ten years, but as he would be entirely ignorant of means of computing time, such a history is quite untrustworthy.

Aden.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. BARTHOLOMEW'S HOSPITAL.

SARCOMA OF THE TONGUE; REMOVAL OF HALF OF TONGUE RECOVERY; REMARKS.

(Under the care of Mr. BUTLIN.)

CONNECTIVE-TISSUE tumours of the tongue are so very rare that the account of the following growth will be read with great interest. Appended to the remarks will be found references to other tumours of this part, and the list is not a large one. The diagnosis has to be made from gumma, and in order to do this it is necessary to give large and increasing doses of the iodide of potassium. This treatment was fully tried in this case, and the swelling punctured, without improvement. For the following notes we are indebted to Mr. Knight.

C. J——, aged forty, car-driver, was admitted into Rahere ward, Oct. 12th, 1886, with a swelling of the left half of the tongue. The patient first noticed a soreness about the middle of the left side of the tongue two months ago, and a swelling at the same spot one month ago. The swelling had increased rapidly. He had had no pain except on eating; he never had syphilis; he had smoked cigars, but never a pipe. Always enjoyed good health. Family history good.

On admission he was a healthy-looking, strong man. Situated in the substance of the left half of the tongue was a smooth, soft, elastic swelling, bulging on the upper and under surface of the tongue, and about the size of a fives ball. It did not extend across the middle line, but reached from the junction of the anterior and middle thirds to the back of the tongue. The latter could not be protruded from the mouth. There was no ulceration. A hard and enlarged gland was felt beneath the jaw in the submaxillary region. The teeth in the upper jaw were mostly in a decayed condition. Under the impression that the tumour contained fluid it was punctured five days previously, but only blood exuded. He was ordered ten grains of iodide of potassium three times a day.

Oct. 16th.—Fifteen grains of the iodide were ordered. No change in swelling.

19th.—Iodide increased to twenty grains. Tongue can be protruded a little further.

22nd.—Twenty-five grains of the iodide to be taken. No further change.

23rd.—The under surface of the tongue was painted with a 4 per cent. solution of cocaine and the swelling again punctured. A few drops of blood only exuded.

25th.—Thirty grains of iodide of potassium ordered.

28th.—No material alteration has taken place in the swelling since admission.

After consultation with his colleagues, Mr. Butlin decided to make an incision into the tumour, and if it should prove to be malignant, to remove it. Accordingly, on Nov. 5th the patient was placed under the influence of an anæsthetic, and Mr. Butlin cut into the tumour, which proved to be solid. He then cut through the mucous membrane in the median line above and below the tongue, and tore through the muscular tissue from the tip to the back. The left half of the tongue was then snipped through with scissors behind the tumour, all vessels being clamped as soon as divided. There was a good deal of hæmorrhage. The vessels were secured with silk ligatures, and the wound dusted with iodoform. The gland under the jaw was not removed. The growth on section proved to be a soft white tumour about the size of a fives ball; it was circumscribed, with the appearance of a capsule at one point. The microscope showed it to be a small round-celled sarcoma (lympho-sarcoma). Some hæmorrhage ensued five hours after the operation, and two small vessels were ligatured; the general oozing was stopped by the application of some styptic charpie.

Nov. 6th.—Temperature 99·8°; pulse 136. Fed, by a tube passed through the nose three times a day, with eggs, milk, essence, and beef-tea. Wound dusted frequently with iodoform; very little swelling.

8th.—Temperature 99·6°; pulse 96. Takes a little iced milk by the mouth. He is still fed by the tube.

10th.—Evening temperature 100·6°; to-day 98°; pulse 86. The gland in the submaxillary region is smaller. Takes liquid food, and is fed twice a day by the tube.

15th.—Got up for the first time. Wound nearly healed. Takes all his food by the mouth. Temperature 98·8°.

17th.—The enlarged gland has entirely disappeared. Wound healed. Talks fairly well, and takes solid food.

On the 19th the patient was discharged from the hospital. Three weeks afterwards he was in good health, and could talk plainly. There was no glandular enlargement, and no sign of recurrence.

Remarks.—The above case differs in some important points from those previously recorded—namely, in the age of the patient, the rapid growth of the tumour, and the healthy condition of the mucous membrane over it. The tumour, though not encapsuled, was perfectly circumscribed. The enlargement of the submaxillary gland was probably due to pressure upon the duct.

Previous cases.—Jacobi: *American Journal of Obstetrics*, 1870. Godlee: "Holmes's System of Surgery," vol. ii., art. "Tongue," by Barker. Hutchinson: Medical and Chirurgical Transactions, vol. lxviii., p. 311, 1885. Eve: Pathological Transactions, vol. xxxvii., p. 223, 1886.

CHARING-CROSS HOSPITAL.

FRACTURE THROUGH SARCOMA OF FEMUR; SECONDARY DEPOSITS IN SKULL AND CLAVICLE; DEATH; NECROPSY.

(Under the care of Mr. BELLAMY.)

THIS case presents several points of pathological interest, and is of value in showing how the real cause of fracture and of the non-union was unsuspected or overlooked. For the following notes we are indebted to Mr. H. L. Arnim, ward clerk.

Fred L——, aged forty-seven, was a sufferer from sciatica and rheumatism, and walked rather lamely with a stick. On Nov. 9th he was at Shaftesbury-road station, and on putting his walking-stick to the platform it slipped through a crevice. He fell heavily forward, at the same time putting out his left leg to save himself. He heard and felt something snap in the limb, and felt a sudden pain. Patient was unable to rise to his feet or, indeed, to bear any weight upon the left limb, and was brought to the hospital in an ambulance. The fracture, which was in the middle third of the left femur, with very little displacement, was put up in a long Liston splint with a starched bandage.

Nov. 18th.—No pain; temperature normal.

26th.—Progressing favourably.

Dec. 1st.—There is no pain; patient feels quite comfortable.

14th.—A bedsore about three by two inches has formed over the right buttock. It is dressed with boracic ointment.

21st.—A swelling of about the size of a Tangerine orange has appeared over the left side of the scalp. On an exploratory puncture being made, the contents were found to be blood. Over the anterior aspect of the inner third of the clavicle is a painful swelling occupying about two inches of the anterior aspect of the bone. The pain is of a lancinating character, worse at night. Skin not discoloured. A plaster-of-Paris bandage substituted for the starched bandage.

26th.—Patient got up yesterday and the day before.

27th.—The plaster-of-Paris bandage has been removed; there is much pain at the seat of fracture.

28th.—Skin over back broken; painted with balsam of copaiba.

Jan. 4th.—Patient put under ether. Ends of ununited bone rubbed together. Leg put up on long Liston splint.

6th.—The clavicle is better; swelling and pain decreased; fracture still painful.

18th.—Thigh put up in plaster-of-Paris. Sore on back size of palm of the hand. Slough separating and leaving ragged ulcer, which is discharging freely. Dressed with iodoform and boracic dressing. The sore extends from the tip of the coccyx to the upper border of the sacrum.

Feb. 2nd.—The patient is very emaciated; complains of loss of appetite. Slight sore appearing under right angle of the scapula. Still dressed with iodoform and boracic dressing. Leg put in plaster again.

21st.—For the last eight or ten days the patient has been in a half-conscious condition; mind wanders occasionally. Sore on back getting larger; edges of the ulcer undermined. Ulcer presents an indolent appearance. Patient's appetite bad; very weak. The patient died this evening at 11 P.M.

Necropsy.—Body emaciated; no rigor mortis. Abdomen (superficial view) normal. Heart distinctly fatty. Liver fatty; no secondary nodules; weight 3 lb. 8 oz. Kidneys normal. Spleen rather soft; post-mortem change. Apex of right lung emphysematous; base congested with purulent fluid passing from the bronchi. Left lung congested and slightly emphysematous; rest same as right. The convolutions of the brain were marked on the left side by a tumour pressing on them; the dura mater was not destroyed, and the tumour was not adherent to the brain substance. There was a large ovoid swelling on the left thigh at the junction of the upper and middle third; the upper and lower parts could be freely moved on each other, with a peculiar crackling distinctly felt by the hand. On removing the femur this ovoid swelling externally looked very much like brain tissue, being convoluted; and on section it was the same, but it cut much harder than brain tissue. There was a tumour on the left parietal region of the skull. On dissection it was beneath the pericranium, and the dura mater was intact on the internal surface; the whole of the parietal bone for the diameter of two inches and a half being replaced by a soft, brain-like tumour of the same nature as the tumour of the femur. The mass occupied the anterior superior portion of the parietal bone, extending about half-way from the sagittal suture down the bone, and less than half way back from the fronto-parietal suture. It projected about an inch and a half from the surface, and was almost flat inside.

MANCHESTER ROYAL INFIRMARY.

HYDATID CYST OF LIVER; RESECTION OF RIB; REMOVAL OF CYST WALL.

(Under the care of Mr. WHITEHEAD.)

WE are indebted to Mr. Brazil for the report of the following case.

E. W——, a slightly-built and somewhat delicate-looking woman, aged thirty-two, was admitted into the surgical wards on Sept. 18th, 1886. The patient gave the following history of her trouble. In January 1885, she had a slight attack of pneumonia, and on recovery was left with a pain in the right side, which has continued with varying intensity up to the present date. About six months previous to admission she appears to have had an attack of jaundice, and at the same time some swelling of the lower extremities. About two months after this she was admitted into the Bowdon Consumption Hospital, where she remained three weeks. While there an aspirating needle was introduced into the hepatic region, and some clear fluid withdrawn. From Bowdon she came to the Manchester Royal Infirmary, and was admitted into the medical wards. Here she remained about three months, after which she was transferred to the surgical side. While in the medical wards she was tapped twice; on the last occasion 15 oz. of fluid were withdrawn. The fluid was clear, contained abundance of chlorides, but no albumen. No hooklets were dis-

covered on either occasion. Patient had lost flesh considerably during her stay in hospital.

Her condition on admission to the surgical ward was as follows: On physical examination some fulness was perceptible over the hepatic region. The liver dulness was markedly increased, and was found to extend upwards as high as the third intercostal space, and downwards for half an inch beyond the costal margin. There was slight tenderness on pressure. The patient complained occasionally of slight pain in the right side radiating into the right shoulder.

Operation.—On October 4th the patient was placed under chloroform, and an incision about two inches long was made parallel to and slightly below the right costal margin. The various layers of the abdominal wall were divided successively and the anterior border of the liver brought into view. No cyst, however, was found. The wound was now carefully stitched up again, each layer being sutured separately. From this operation the patient made a good recovery.

On Nov. 13th a second operation was undertaken. An incision about three inches long was made over the eighth rib in the mid-axillary line, and a portion of the rib about an inch in length resected, the periosteum being left. After cutting through a layer of thickened pleura a large cavity was reached, from which about twenty ounces of thick yellowish-brown fluid escaped. This fluid was afterwards found to be loaded with albumen and to contain distinct hooklets. The cavity was lined with a distinct homogeneous membrane of a bright yellow colour, about $\frac{1}{16}$th of an inch thick, and rather soft and friable. By careful manipulation the cyst wall was entirely removed. Numerous daughter cysts were removed at the same time, some coming away with the fluid, some with the cyst wall. After removal of the cyst the cavity was thoroughly washed out with boracic lotion and a large drainage-tube inserted.

Nov. 14th.—The patient passed a fairly good night. Temperature 98°. The dressings were soaked through with fluid highly coloured with bile. Cavity washed out as before. The patient is taking eight ounces of brandy a day.

20th.—The discharge is still very profuse and deeply bile-stained, but is now distinctly purulent. The cavity is washed out daily with boracic lotion. Portions of daughter cysts occasionally come away with the discharge.

December 6th.—The temperature last night went up to 101·6°, and the dressings were found to be saturated with blood. On examination it was found that the hæmorrhage proceeded from the cavity. This was washed out with boracic lotion and fresh dressings applied. This morning a quantity of blood was found on the dressings, and on syringing the cavity a few clots came away.

7th.—Temperature this morning 97·6°. More blood was found on the dressings, and a few more clots discharged.

10th.—There has been no more bleeding, and the temperature remains normal. The discharge is small in quantity, and consists of perfectly healthy pus. The cavity now holds rather more than an ounce of fluid. After this the patient continued to make a good and quite uneventful recovery. When seen in February, she was looking stouter, was in better health altogether than before the operation, complained of no pain, and ate and slept well. The wound in the side had not healed, but the discharge was perfectly healthy and trifling in amount.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST.—The seventy-third annual court of governors of this institution was held on the 15th inst., the Lord Mayor presiding. From the report it appeared that the financial condition of the hospital during the past year has been, on the whole, encouraging, but much remains to be done before it can be pronounced satisfactory. In order to carry on the work now in hand an annual income of between £4000 and £5000 is required, and when all the wards are in full work the annual expenditure will not be less than £7000. The present income from subscriptions and dividends amounts to less than £2000. These, added to the donations and collections last year, produced a general income of about £3100, exclusive of legacies. The Right Hon. Lord Charles Bruce has accepted the office of President of the Hospital.

Medical Societies.

ROYAL MEDICAL & CHIRURGICAL SOCIETY.

Obstruction of one Ureter by a Calculus, associated with complete Suppression of Urine.—Sacculated Kidney containing Calculi with Disorganisation of the other Kidney, and associated with complete Suppression.

AN ordinary meeting of this Society was held on Tuesday last, Mr. G. D. Pollock, F.R.C.S., President, in the chair.

Mr. R. J. GODLEE read a paper on a case of Obstruction of one Ureter by a Calculus, accompanied by complete Suppression of Urine. Up till June 4th, 1884, the patient, a medical man, who was then thirty-one years old, had enjoyed good health, with the exception of an attack of blood-poisoning following a poisoned wound whilst he was a student in 1872, and occasional attacks of colic, supposed to be intestinal, which were relieved by morphia. He was then attacked with frequency of micturition and pain in the bladder. A week later sickness began and right renal pain, with fever and hæmaturia. There was pus in the urine. After a few days these symptoms subsided, but they soon returned and became worse. Intense tenderness appeared in the right loin, and the urine became highly albuminous, and contained large numbers of hyaline and granular casts, as well as masses of bacteria, but it was never putrid. On July 13th a deep-seated perinephritic abscess was opened. The kidney could not be discovered. The casts disappeared completely from the urine, and the albumen diminished to a very small quantity. No urine escaped from the wound, which healed without trouble. The patient after this remained well, with the exception of occasional attacks of colic, till Dec. 10th, 1885, when an attack of great severity set in, for which he took several hypodermic injections of morphia. On the 14th complete suppression of urine occurred, and lasted a week. No operation was undertaken, because it was assumed that there was only one working kidney, the ureter of which was blocked. On the 19th, however, the left kidney was felt and punctured, but the pelvis was found to be empty. On the 21st he began to pass highly albuminous urine, and the amount and character of this became more and more normal; but he did not rally, and died exhausted on the 26th. At the necropsy the right kidney was found to be dilated into a loose bag of pus, and a stone was impacted half way down its ureter, which was dilated throughout its whole extent. The left kidney was large and comparatively healthy, but showed signs of chronic interstitial nephritis; the pelvis and ureter on this side were normal. The interest of the case depends on the following facts: 1. That an abscess around a diseased kidney may cause intense albuminuria and the presence of copious casts, even though the other kidney be comparatively healthy. 2. Irritation of such a diseased kidney (aided perhaps by the presence of a certain amount of morphia in the system) may cause complete suppression, similar to that caused by complete obstruction of the ureters, and not like that occurring in Bright's disease. 3. Though the stone was impacted halfway down the ureter, this tube was dilated throughout its extent.

Mr. R. W. PARKER read a paper on a case of Suppression of Urine, following injury to a sacculated kidney containing calculi, the other kidney being entirely disorganised. S. C.——, aged thirteen, a well-built boy, fell over some steps and struck his right side in the region of the kidney. Up to this accident he was said to have been quite well. The fall caused him great pain, and he had some difficulty in getting home. He went to bed, and remained there for some days. Two days after the accident the boy "passed blood instead of urine." He vomited frequently, and suffered considerable pain at intervals, and the urine continued to contain blood. At the end of a week he appeared to have regained his usual health, but his symptoms all recurred at the end of another week, and he was brought to the hospital, where he remained three weeks, and was then discharged apparently well. Examination at this time failed to detect anything abnormal with or about the kidney. He had some slight pain from time to time, and for two or three days after admission the urine contained blood. In two months'

time the boy was brought back to the hospital, with recurrence and aggravation of all his symptoms. It was then elicited, after closely questioning his mother, that the lad had had similar but less pronounced symptoms for twelve months past. On his readmission he was found to have a large, tense, elastic swelling in the region of the right kidney, extending as far forwards as the umbilicus. This was diagnosed as a traumatic hydronephrosis, and was tapped several times on account of the pain and discomfort which it caused. As it refilled rapidly, it was exposed in the loin and a free incision made into it. During the first five days in the hospital the boy passed an average of forty-five ounces of urine; in the next four days this average fell to thirteen ounces a day; on the tenth day only one ounce was passed. Unmistakable signs of uræmia now set in, and the boy died four days subsequently. The post-mortem examination showed that the left kidney was quite disorganised, and converted into a mere sac, in which one large and several small calculi were found. The right kidney (the injured one) was greatly hypertrophied; the calyces were much dilated, in one of these a large calculus was found, and in others smaller calculi. A small calculus was found in the right ureter, at the level of the brim of the pelvis. The author remarked on the awkward nature of the hydronephrotic sac as a complication; it prevented the finger reaching the front of the kidney, and the examination of the pelvis and ureter through the incision in the loin. It was thus impossible to make quite sure of the diagnosis. Calculus was suspected and the kidney was punctured in several places without result. When the urine diminished in quantity, less importance was attached to this fact than it merited, judged in the light of the post-mortem evidence; it was thought the urine found its way into the hydronephrotic sac, and that the diminished quantity, voided per urethram, represented the product of the other kidney. The treatment adopted was referred to, and the question was raised whether any surgical treatment directed through the loin could have dealt with this case successfully.

Mr. BELLAMY showed a specimen taken from a young man aged twenty-three. In this case it was difficult to reach the kidney, and altogether the case had considerable resemblance to that described by Mr. Parker.—Dr. S. COUPLAND said that the paper by Mr. Godlee raised questions of much moment in renal pathology. Was it possible that disease about one kidney could determine suppression of function in the other, presumably healthy, kidney. He inquired for further information as to the amount of disease found in it. Any irritation in the body would have a greater effect on a kidney which was the seat of some morbid change. The fact that the "good" kidney was slightly cystic and the seat of a little interstitial nephritis would predispose it to cease secreting. He inquired on which side of the body the patient experienced the last attack of renal colic preceding suppression of urine. He ventured to question, in view of the variety of clinical aspects of uræmia, whether it was not too much to endeavour to distinguish between the obstructive and non-obstructive kinds by a reference to mere symptomatology.—Mr. W. A. MEREDITH thought that the case illustrated the advantages of performing an abdominal exploration before determining on a lumbar incision. It might have been possible to have felt the stone in the right ureter.—Mr. HOWARD MARSH said that it must be admitted that in the three cases mentioned a defective diagnosis had been made. He thought that this circumstance, amongst others, was an argument in favour of an abdominal exploration. One point in renal surgery seemed to be coming to the front; that many stones were not to be reached from the loin. Our progress seemed to be in the direction of admitting the wisdom of an abdominal examination. Reference was made to the case read by him before the Clinical Society.[1]—Mr. A. A. BOWLBY raised with Dr. Coupland the question whether disease of one organ could cause suppression of urine in a sound kidney. He related the case of a man who sustained an injury in the loin, which was followed by sickness and hæmaturia. A urethral stricture gave some trouble at first, but after the catheter was tied in complete suppression of urine for thirty-six hours followed, and but twelve ounces were passed in the next twelve hours. The urine was then healthy, and had not a faint trace of albumen. As bearing on the question of the influence of injury on a subject affected with Bright's disease, he mentioned the case of a man who had a compound fracture of the tibia, and died soon after. It was found that there was evidence of chronic interstitial nephritis, on which an acute suppurative nephritis had supervened, probably as the result of the severe accident.—Dr. R. D. POWELL inquired what was the cause of the perinephritic abscess. Seeing that a perinephritic abscess existed, he asked whether it would be good surgery to attack it through the median line of the abdomen. He considered it would be bad surgery, from a physician's point of view, to perform the abdominal section in the presence of urine albuminous and containing casts. He also considered that it would be practically impossible to determine the state of the parenchyma of the kidney by mere palpation, or indeed by any other method of physical examination.—Mr. A. E. BARKER rather agreed with the views of Dr. Powell, and especially in the case of a perinephritic abscess. If a stone be impacted in the upper part of the ureter, and could be returned to the pelvis, a nephrolithotomy from the loin would still be necessary. In many advanced cases the lumbar nephrotomy would be most suitable. But he did not deny that there were cases in which the abdominal section would be not only justifiable, but more advantageous. The case of a young woman was narrated in which a stone was removed by the lumbar operation from the infundibulum of the renal pelvis; but it appeared that the stone had been there so long that it had led to an apparent cicatricial thickening of the upper end of the ureter; a permanent lumbar fistula was necessary. The patient remained well and suffered no discomfort. — Mr. MEREDITH said he only advocated abdominal exploration as a means of diagnosis. — Mr. BARWELL remarked on the importance of estimating the amount of urea discharged daily. Important information might thus be gained, and might be of service in determining the advisability of operation.—Dr. OGIER WARD said that much valuable information might be obtained by catheterising the ureters, a method which would allow of the separate examination of the urine discharged from each kidney.—Mr. GODLEE said there was some disease in the comparatively healthy kidney, and he did not contend that disease about one kidney could lead to cessation of function of the other kidney if the latter be perfectly sound. He did not venture to say whether we dwelt too much upon the distinction between obstructive and non-obstructive anuria. The stones in the kidney were the probable cause of the perinephritic suppuration. He considered that a hand in the abdomen could not determine the healthiness of a kidney. Reference was made to the invention some years ago of an instrument shaped like a lithotrite for the investigation of the urine from the ureters.—Mr. R. W. PARKER said that in his own case an abdominal exploration would have determined the state of the diseased kidney. The stone, too, would have been detected in the ureter.

[1] THE LANCET, p. 269.

MEDICAL SOCIETY OF LONDON.

Incision of Swollen Optic Nerve-sheath.—Solvent Treatment of Renal Calculus.—Intussusception.—Congenital Defect in Diaphragm.

AN ordinary meeting of this Society was held on Monday last, Dr. Hughlings Jackson, F.R.S., President, in the chair.

Mr. BRUDENELL CARTER read a paper on a case of Swollen Optic Disc, in which the sheath of the optic nerve was incised behind the eyeball. After alluding to the attempts of De Wecker and Power, he discussed the pathology of swollen optic nerve, and contended that it was primarily dropsical and only secondarily neuritic. He considered that there was a descent of fluid from the subarachnoid space to the space between the dural and pial sheaths of the optic nerve; the nerve was compressed by the fluid and the venous circulation was impeded. The results varied in different cases. Mr. Carter contended that incision of the nerve-sheath and evacuation of the contained fluid, if accomplished at or before the commencement of impairment of vision, would save the patient from blindness. The case related was that of a young woman who had impaired sight and headache of ten days' duration. The left optic disc was much swollen. Under iodides and mercury no improvement resulted. The disc swelled still more; hæmorrhages and patches of exudation also appeared; and, with the assent of Dr. Hughlings Jackson, Mr. Carter

decided upon an operation which he first practised on the dead subject. The external rectus muscle was divided; the eyeball then rotated inwards; the sheath of the optic nerve was exposed and opened, and gave exit to the contained fluid. Recovery was uninterrupted, the patient was at once relieved of headache, which did not return for a month, and in ten days after the operation the swelling of the optic disc was found to have diminished by one-half. Further recovery has resulted. Mr. Carter claimed that the operation could be performed with certainty and without danger, and he urged its adoption in all cases of cerebral disease in which sight was beginning to be impaired.—Dr. HUGHLINGS JACKSON remarked that the case was of great interest because of the monocular optic neuritis and of the blindness of the temporal half only of the visual field. He expressed his approval of the operation in the case mentioned, and considered it resulted in a great success.—Mr. JULER was much interested in the operation, and congratulated Mr. Carter on the result.—Mr. ASTLEY BLOXAM thought that opening the sheath of the optic nerve might act as a drain on the subarachnoid space in cases of tubercular meningitis associated, or not, with optic neuritis.—Dr. HERRINGHAM inquired whether Mr. Carter would operate on cases of uræmic neuritis.—Dr. S. WEST asked whether the operation would be performed on one or both sides in cases of double optic neuritis, and whether many cases of optic neuritis became blind.—Dr. ORMEROD spoke of the effect of this operation on the actual cerebral condition: the headache appeared to be relieved in the case related. The operation might be beneficial in preventing blindness in those cases which ultimately recover from the disease which caused the optic nerve swelling.—Mr. B. CARTER considered that true neuritis could not exist without affecting the function of the optic nerve. He would not be disposed to incise the sheath in cases of granular kidney, nor in other cases unless there was defect of vision.

Dr. RALFE exhibited a specimen of Renal Calculus passed after six weeks of solvent treatment. It was oat-shaped, eroded on the surface, measuring one-third of an inch long, and weighing three grains and a half. It was composed chiefly of oxalate of lime, with a few crystals of uric acid scattered over the surface. The remedies employed consisted of lithia and turpentine in a mixture, with Dover's powder at night. The patient was also directed to drink at least three pints of filtered rain-water daily. Under this treatment the urine, which at first had a specific gravity of 1025 and contained much blood and pus, became clear, and the specific gravity fell to 1014, whilst the attacks of colic diminished. Dr. Ralfe's method differs from that proposed by Sir William Roberts, in that he does not seek to diminish the size of the calculus by chemical solvents—a doubtful and difficult process,—but by checking its growth, by keeping the specific gravity of the urine low, and also by diminishing existing pyelitis to allow free passage to the concretion. Dr. Ralfe observed that there are many calculi small enough to easily slip down a ureter, but are prevented by the swollen condition of the orifice. He illustrated this by a specimen, which had been retained for several days, owing to the patient suffering from gouty pyelitis, though the concretion was quite minute. As soon as the pyelitis was relieved the calculus passed easily. In addition to distilled water and turpentine, Dr. Ralfe spoke highly of benzoate of lithia or potash. He advises recurrence to this mode of treatment: 1. When the calculus is recently formed and is still small, and is retained chiefly by the swollen condition of the mucous membrane of the pelvis of the kidney. 2. In recurrent calculi, the pisiform concretions of elderly people. In these cases the calculi passed before the administration of the remedies are about the size of a pea; after, they diminish to that of a mustard-seed (specimens shown), or cease altogether. 3. In cases when, owing to the obesity of the patient or broken health, nephro-lithotomy is not advisable. In these cases we may hope the distilled water may in time lead to the disintegration of the calculus, as in a case recorded by Dr. Ralfe;[1] whilst the terebinthine remedies undoubtedly diminish the pyelitis and the tendency to colic.—Dr. MAGUIRE considered that it savoured of the irrational to send patients to foreign spas when so much could be done for them at home by the employment of distilled water which contained no salts, and therefore would presumably have a greater solvent action on stone than waters impregnated with salts.—Mr. F. B. JESSETT said that larger stones had been passed without the treatment, which benefited rather by its diluent than solvent action.—Dr. RALFE said he did believe in a solvent action, and he attached considerable importance to the treatment of pyelitis.

Dr. W. H. ALLCHIN showed a specimen of Intussusception removed from a male infant aged six months. The tumour was of the size of a Cambridge sausage; the jejunum was drawn down so as to be close to the intussusception, which had descended into the rectum. There was a second duplication of the colon, doubtless secondary in time to the primary intussusception.

Mr. ASTLEY BLOXAM showed a specimen of Congenital Opening in the Diaphragm in an infant aged three months; it was situate near the left external arcuate ligament. The left lung had never been expanded; chronic vomiting led to exhaustion. He also showed a case of Plastic Surgery in which a new mouth had been formed.

[1] Pathological Society's Transactions, vol. xxxiii.

HARVEIAN SOCIETY.

Extirpation of the Axillary Glands: a necessary accompaniment of removal of the Breast for Cancer.

AT the meeting on March 3rd (Edmund Owen, M.B. F.R.C.S., President, in the chair), the sitting was occupied by a discussion on the above subject.

Mr. MITCHELL BANKS, in opening the debate, laid before the meeting a printed table showing the results of his practice in eighty-two cases. The complete operation as advocated by himself was indeed a very severe measure, and its mortality was very considerably in advance of that of the old incomplete method, in which the axilla was not opened. At the same time, however, his table showed that the duration of life was prolonged, and the recurrence of cancer less seldom occurred; and these results justified the greater risk to which the patient was exposed. The old incomplete operation he condemned as *unscientific* and *useless*. He laid great stress on not allowing the chest wound to remain exposed while the axilla was being cleared, but advocated closure of the wound from below upwards as the operation proceeded; the glands should best be removed by the knife, but enucleated with the aid of the fingers and two pairs of forceps. He did not hesitate to tie and remove portions of the axillary vein, if this last vessel interfered with complete removal of the glands.

Mr. BRYANT thought the operation advocated a very severe one, and its results, as shown by Mr. Banks' tables, disappointing. Theoretically, the complete operation was all that could be desired, but in practice he felt that it was open to criticism. In ordinary cases it might be right to perform the complete operation, but in some cases—e.g., in aged women with ulcerating cancers, and in feeble women possessed of only moderate powers—the incomplete one was justifiable. Speaking from his own experience, the mortality of the complete was but little over that of the incomplete operation. It would seem that the average duration of life after the severe operation was not much greater than after the milder procedure. Statistics showed that after the incomplete operation one-third of the cases lived for six years, and 25 per cent. for ten years and more. It might fairly be questioned whether the complete gave really better results; and, if not, was it justifiable to submit every patient to the greater risk? In his opinion, unless the glands could be easily felt, it was wisest, in dealing with aged or feeble patients, not to open the axilla. He approved of Mr. Banks' plan of closing the wound from below upwards as he proceeded, and likewise of his method of enucleating the glands in preference to removing them by section. No harm came from interference with the axillary vein, though he had only once had occasion to tie that vessel in the course of the operation.

Mr. PICK did not agree with Mr. Banks in his opinion that the operation for removal of the breast for cancer in the usual manner—by the method which Mr. Banks was pleased to call the "incomplete" method—was "useless or worse than useless," even though it did not prolong the patient's life by a single day. It freed the patient from the oppression of a disease which she knew was rapidly approaching a fatal termination, and gave her the chance, and certainly the hope, of immunity from recurrence. It afforded her an interval of health and freedom from pain, instead of a life of anxiety and suffering, and in a certain percentage of cases the cancer returned in some internal organ and

afforded the patient a quiet and comparatively painless death, instead of the horrible suffering which an open cancer too often entailed. With regard to the "complete" operation of Mr. Banks, Mr. Pick quite agreed with him that the removal of the disease should be most thorough, and that, in order that this might be so, no heed should be taken to preserve sufficient skin to form flaps to cover the gap left, but that, if necessary, the sore should be left to granulate as an open wound. But he was not prepared to agree with Mr. Banks that clearing out of the axillary space was either necessary or judicious. The proceeding added very materially to the danger of the operation, as shown by Mr. Banks' tables; and in his (Mr. Pick's) experience it was only in a small percentage of cases that the disease recurred in the axillary glands, the cicatrix remaining healthy. He therefore regarded the proceeding as unnecessary, and it was also injudicious as adding to the mortality. Mr. Pick was inclined to attribute the success which Mr. Banks had obtained rather to the very free removal of the breast and surrounding tissues than to the extirpation of the axillary glands.

Mr. BUTLIN said that in the discussion on Dr. Gross's paper, during the meeting of the International Congress in London, he had been inclined to take a similar view to Dr. Gross and Mr. Banks with regard to the removal of cancer of the breast. Since that time, however, he had made a very careful study of the natural history and course of cancer of the breast, and of the cases published by the author of this paper, and had come to the conclusion that the very free removal of the mamma and opening of the axilla, recommended by Mr. Banks in every or nearly every instance of cancer of the breast, is an unsurgical and unscientific proceeding. Besides several minor propositions, Mr. Banks had put forward two main propositions: that the operation should include the entire mamma with the overlying skin and parts beneath in all cases, and that the axilla should be opened, whether enlarged glands could be felt in it or not. Mr. Butlin dissented from both propositions. From the first, because the operation bore no direct relation to the extent of the disease. The tumour was often of small size, and situated in the inner or the lower segment of the breast, and the incisions, instead of being carried equally far from it in every direction, were perhaps three inches from it in one direction, and less than one inch in other directions. Cancer of the breast must be treated in the same manner and on the same principles as cancer of the lip and similar parts; very free removal of the disease, the surrounding textures, the overlying skin, and the fascia over the muscle, if need be; but not removal of parts which were not, and probably never would be, affected. With regard to the second proposition, most surgeons were agreed that the glands in the axilla should be removed if they were enlarged and could be taken away. Mr. Butlin would go so far as to open the axilla in cases in which an indefinite fulness could be felt. But he would not open the axilla in other cases. He had collected notes of 101 cases in which the axilla had not been opened, and 209 cases in which the glands had been removed. The mortality in the first set was 10 per cent., the proportion of women alive and well at the end of three years, 18 per cent. The mortality in the second set was 20 per cent.; the number of women remaining well at the end of three years about 5 per cent. The cases in which there was no affection of the glands, and in which the axilla had consequently not been opened, were by far the best cases for operation, not only on account of the less severity of the operation, but because the disease was less malignant.

Mr. HARRISON CRIPPS thought the profession was much indebted to the persevering manner in which Mr. Banks had brought the subject of the removal of the axillary glands so prominently forward. Though he would not like to make an arbitrary rule that they should invariably be removed, he agreed that in the majority of cases such treatment was indicated. The question to some extent turned on whether or not the opening of the axilla and removal of the glands added greatly to the danger of the operation. According to the experience of St. Bartholomew's Hospital this did not appear to be the case. In the five years from 1863 to 1867, at a period when it was the exception rather than the rule to open the axilla, the mortality after amputation of the breast was as near as possible 11 per cent. Owing, however, to improved methods and better sanitary condition of the hospital, the rate of the mortality during the last five years only amounted to 5½ per cent., and, moreover, during this latter period, in about half the cases the axillary glands had been removed. In the last year's reports it is especially noted that of thirty-eight cases of amputation of the breast for cancer, in nineteen the axillary glands were also removed, but the rate of mortality was exactly the same—viz., one death in the nineteen cases in which the glands were untouched, and one death in the nineteen cases in which the glands were removed. The high rate of mortality in Mr. Banks' cases appeared to be entirely due to blood poisoning, the result of insanitary surroundings. Mr. Cripps considered that in operating for breast cancer the free removal of skin over the tumour, although it might appear to be supple and not complicated at the time of operation, was of the utmost importance, for it frequently happened that recurrence took the form of cancerous nodules in the skin bordering on the cicatrix, and that this phenomenon showed how often the skin was really infected, and should have been freely removed at the original operation.

The PRESIDENT expressed surprise at the amount of opposition which the important paper, just read, had elicited. He was under the apprehension that surgical opinion was steadily drifting in the direction of opening the axilla and enucleating all discoverable lymphatic glands, whether definitely implicated or not. Often it was impossible to say whether there was axillary invasion or not until the armpit had been opened up. Clearing away the glands was a desirable measure, in that it diminished the risk of subsequent pressure (from secondary malignant enlargement) upon the axillary vein and the cords of the brachial plexus, thus obviating, as he believed, the œdema and neuralgia of the arm so often met with when the glands were left untouched. Probably, also, the removal of the glands might be the means of checking a general invasion of the lymph currents; the risk of remote infections was certainly less if those centres of infection, the glands, were out of the way. The operation was a severe one, but it had the great recommendation of being thorough. He failed to see how an operation for malignant tumour could be complete which did not effect at the same time the cancerous glands associated with that tumour.

Mr. BANKS briefly replied.

MANCHESTER PATHOLOGICAL SOCIETY.

A MEETING of this Society was held on Feb. 9th, Dr. J. Dreschfeld, President, in the chair.

Cystoma of the Ovary.—Mr. W. A. STOCKS showed a preparation of a cystoma about the size of an orange which had passed down Douglas's pouch, and had been extruded through the anus, pushing the anterior wall of the rectum before it. It had been successfully removed by operation.

Vesical Calculi.—Mr. W. A. STOCKS also showed thirty-seven calculi which had been removed from the bladder of a man by lateral lithotomy. Each original calculus contained a minute millet-seed nucleus, around which had been deposited some buff-coloured urates, showing a distinct concentric arrangement, and having four or five lines of a much lighter colour radiating from the centre to the circumference, after the manner of those seen in the transverse section of an orange, each stone being about three-eighths of an inch in diameter. At this stage of their development many of these stones seemed to have undergone spontaneous division through the lines above mentioned, forming a second series of nuclei. Every stone had been covered with a thick layer of phosphates, those of the primary series forming stones three-quarters of an inch, and those of the latter series, stones of about half an inch in diameter, irregular in shape and furnished with a varying number of facets.

Mammary Tumours.—Dr. W. THORBURN exhibited a series of sections of various breast tumours. He demonstrated the varieties of cancer and their modes of growth, and showed preparations illustrating every stage in the development of cysts and intra-cystic growths in non-cancerous tumours. Among the rarer forms he showed a pure myxoma, an adenoma without overgrowth of the connective tissue elements, and a typical "villous cancer."

Intra-ocular Growths.—Dr. HILL GRIFFITH showed twelve glycerine jelly preparations demonstrative of intra-ocular growths and cyclitis, and mentioned the diagnostic appearances of sarcoma of the choroid, glioma of the retina, and plastic cyclitis on the so-called pseudo-glioma.

Changes in the Spinal Cord and Peripheral Nerves after Amputation.—Dr. E. S. REYNOLDS made some observations on the changes in the nervous system after the amputation

of limbs, showing a series of specimens from a case. Having briefly referred to the history of the subject, and especially to some recent observations made by Friedländer and Krause, he pointed out that the changes in the case which he had investigated consisted in a simple atrophy of the majority of the fibres in the nerve trunk of the amputated leg, with increase of lymph spaces and connective tissue, and that this change could be traced up to the cord, principally in the posterior nerve root, but also in the anterior nerve root. In the cord the changes were limited to the lumbar region, and consisted of a slight decrease of the posterior horns and columns, and a more marked decrease of the anterior horns, affecting the number and structure of the cells in all the groups, but especially in the postero-lateral and central groups. Clarke's column was not affected.

MIDLAND MEDICAL SOCIETY.

A MEETING of this Society was held on March 2nd, Mr. Lloyd Owen, F.R.C.S.I., President, in the chair.

Locomotor Ataxia with Joint Disease.—Dr. SUCKLING showed a man aged forty-eight, who was suffering from locomotor ataxia with disease of his knee-joints. He was quite well up to twelve months ago, when he had attacks of vomiting with shooting pains in the legs. Soon after he complained of having girdle pains. The knee-joints began to enlarge about nine months ago, there being pain only in the left one. At the present time there is marked crackling on movement of each joint, with enlargement especially of the internal condyle of the femur on both sides, and partial dislocation outwards of the patella and tibia on the left side, on which side there is also some genu valgum; there is no excess of fluid in either joint. The knee-jerk is lost on both sides, the pupils are unequal and respond to accommodation, but not to light.

Tumour of Bladder treated by Supra-pubic Cystotomy.—Mr. BENNETT MAY reported this case, and showed the parts removed after death, which took place six months after the operation. In comparing the two methods of operating—viz., by the median perineal and by supra-pubic cystotomy,—Mr. May observed that the former was undoubtedly the simpler and possibly safer operation, and was an excellent means of exploring the bladder, whilst it was also quite adequate for the removal of some tumours. For the majority of cases of tumour of the bladder, however, it was far inferior to the supra-pubic operation, which gave opportunity for inspection and more thorough manipulation within the bladder. From the point of view, also, of the patient's subsequent condition, and for the purposes of permanent opening for micturition, when, as so often happens, the tumour cannot be removed, the supra-pubic operation was infinitely preferable. He had found the perineal operation a complete failure in relieving the patient's sufferings for any length of time; and for all cases of diagnosed tumour he should operate by the supra-pubic method, provided of course that the bladder could hold sufficient water.

Periosteal Sarcoma.—Mr. JORDAN LLOYD showed a girl aged eighteen who had developed a large malignant tumour of the forearm, probably a periosteal round-celled sarcoma of the ulna, with large ascending growths in the upper arm, the axilla, and the subclavian triangle. The tumour in the forearm was the first to appear, only fourteen weeks ago. This was cut into for the purposes of diagnosis, and on microscopic examination was found to be a small round-celled sarcoma. There was no history of malignancy or of injury. At the time of first seeing the case the disease had progressed too far to admit of removal.

Injury to Shoulder.—Mr. A. F. CLAY showed a man aged seventy-seven who had fallen downstairs on this shoulder; he was told by his medical attendant that he had "broken his arm high up." Three weeks after this Mr. Clay saw him, and found his humerus and clavicle intact, but about an inch and a half above the lowest part of the anterior boundary of the axilla a round hard prominence the size of a marble was seen and easily felt. It was then slightly movable, but more in the lateral than vertical direction. It followed the movements of the humerus. Since then it has become absolutely immovable and is smaller. The coracoid process on the injured side was not so prominent as its fellow.

Reviews and Notices of Books.

Lehrbuch der Chirurgischen Krankheiten des Ohres (Text-book of the Surgical Diseases of the Ear). By Prof. Dr. HERMANN SCHWARTZE. Stuttgart: Ferdinand Enke. 1885.

PROFESSOR SCHWARTZE'S text-boek of aural surgery deserves the attention of all otologists, not only as coming from such a well-known writer, but also from the intrinsic value of the work. To the practitioner who is versed in otological subjects the book will derive its chief attraction from the parts devoted to the newer operations on the hearing organ, in which the author, besides collating the most recent views of others, gives his own extensive experience. A few of these may be briefly noticed.

Division of the tensor tympani is, he says, a procedure devoid of all practical value when employed for the relief of deafness, tinnitus, or giddiness. He has never seen it give any permanent relief to these symptoms, and cases are recorded in which it has provoked an aggravation of the same. As a preliminary operation in excision of the hammer it is more likely to come into use.

Excision of the drumhead and ossicles forms the subject of a very interesting chapter. Schwartze's first attempts at excising the drumhead and extraction of the entire malleus in sclerosis date from the year 1873; these failed regularly, owing to rapid regeneration of the membrana tympani. A method of preventing this regeneration was, however, devised by Kessel, which is adopted by the author. Schwartze's method of operating is as follows: The membrane is divided close to its periphery, the "tendinous ring" being also removed at the back part, according to Kessel's plan. The tendon of the tensor tympani and the joint between the stapes and incus are then divided. The membrane, together with the malleus and incus, is now grasped with a Wilde's snare and removed by a few careful to-and-fro movements. The chorda tympani is necessarily stretched, but if it should be torn across the loss of taste occasioned is usually only temporary. The cases in which the operation is recommended are mainly of two kinds: (1) Chronic suppuration of the middle ear, with caries of the ossicles, and cases of cholesteatoma of the tympanum; (2) Immobility of the malleus, caused either by total calcification of the membrana tympani or by ankylosis of the malleo-incudal joint, it having been previously carefully ascertained that the labyrinth is unaffected, and (by exploratory puncture of the drumhead, &c.) that the stapes is movable. Six cases briefly described by the author show the practicability of the operation, and that in some cases it is capable of relieving the tinnitus; the improvement in the hearing power gained, however, was not marked. On the whole, the results of excision are more favourable in suppurative cases or when there has been previous suppuration, than in cases of sclerosis.

We have dwelt at some length on this operation on account of its novelty, but there are many other parts of the book which deserve mention, notably the chapter on disease of the mastoid, a subject with which the author's name is inseparably connected. Without agreeing with all Professor Schwartze's statements, it may be said that the whole volume is replete with interest to the student and practitioner of aural surgery, and forms a valuable work of reference. It is liberally illustrated; some of the figures we recognise as coming from the author's "Pathological Anatomy of the Ear."

Diseases and their Commencement. Lectures to Trained Nurses. By DONALD HOOD, M.D. London: J. and A. Churchill.

DR. HOOD has in this small but useful work brought under the notice of nurses the fundamental facts connected with the causes, prevention, pathology, symptoms, and nursing treatment of a variety of diseases. The five

lectures of which it is composed are expressed in a simple and graphic style, which renders them as interesting as they are instructive. Lecture I. deals with general physiological considerations, and impresses the paramount necessity of cleanliness and ventilation. In Lectures II. and III. inflammation in various situations is clearly though shortly discussed. Fever forms the theme of Lecture IV., while Lecture V. is devoted to the study of certain prominent symptoms, not so much with a view to diagnosis as in order to show that different causes may lead to the same condition, and to teach the unwisdom of too ready interference. Such practical matters as poulticing, disinfection, diet in typhoid fever, ventilation, &c., are treated in a judicious and careful manner. In speaking of temperatures, we observe that Dr. Hood places the normal heat of the body at 98·2°. Though not a great matter, it would be well if this figure were changed to 98·4°, the standard generally accepted. The book as a whole is likely to prove helpful to nurses by increasing their knowledge of the reason and purpose of their duties.

A Junior Course of Practical Zoology. By A. MILNES MARSHALL, assisted by C. HERBERT HURST. Pp. 440. London: Smith, Elder, and Co. 1887.

ALTHOUGH this handbook is entitled "A Junior Course of Practical Zoology," it is one that might with advantage be worked over by many men who consider that they possess something more than a rudimentary knowledge of biology. As the author observes, a student who works conscientiously through this book will acquire a good insight into the leading facts of animal structure and a technical knowledge of the principal methods of research. The book is divided into chapters, each of which gives the characters of a representative of one of the typical groups of the animal kingdom. Thus, we have the amœba, the hydra, the liver-fluke of the sheep, the leech, the earthworm, the freshwater mussel, the edible snail, the crayfish, the cockroach, the lancelet, the dogfish, the rabbit, and the fowl. In each case the several parts of the animal are described just as it might be by an intelligent teacher who, with knife or scissors and forceps in hand, was demonstrating the parts to a class. The descriptions seem to us to leave nothing to be desired. Mr. Marshall has had large experience in teaching, and avoids the mistake of being too prolix with young students. A few illustrations are given, but are not intended to supersede the sketches that should be made by the dissector. Directions are given in regard to the mode in which the dissection should be pursued. We venture to think that in our large public schools one afternoon in the week might be surrendered to natural science, and that those who exhibit a taste for zoology should be encouraged to hunt for specimens of the animals here described, and to dissect them with the book before them. It would be, we suspect, the most popular afternoon in the week, and would be a welcome change from the dry routine of Latin and Greek as at present taught.

New Inventions.

SEWER-AIR DESTRUCTOR.

MR. G. R. KEELING has sent us an account of an invention for destroying the air from sewers, and for promoting in them at the same time a current which would ensure their ventilation. The apparatus is a column to be placed over the sewer, and which could be used as a lamp standard; within it is situated a large gas-burner, which not only induces an upward current, but is said to consume all the air which passes through it. Mr. Keeling claims that some thousands of cubic feet of noxious gases can thus be extracted hourly from any sewer, and fresh air drawn into it. The amount of gas which is consumed is not, however, mentioned; but, if this be not great, it is likely that his invention will be of practical value.

AN IMPROVED CATGUT-HOLDER.

MESSRS. JOSEPH WOOD & CO., of York, have submitted to us an improved catgut-holder, which has certain excellent features. A reel of prepared catgut is enclosed in a glass vessel of oil, which is securely sealed at the top. One end of the catgut is brought out through a very small hole in the centre of the sealed top, but the aperture is so arranged that no oil leaks out, and there is no tendency for the end of the catgut to slip back into the bottle. By this means the catgut is well preserved, and as much as is required can very easily be at any time removed. The bottle seems to answer its purpose well.

LAPAROTOMY FOR GLUTEAL AND SCIATIC ANEURYSMS.

THE treatment of gluteal and sciatic aneurysms is attended with many difficulties, and cannot be considered as satisfactory. Dr. F. S. Dennis of New York has recently published a paper containing reports of three cases of the kind, which were treated by laparotomy and ligature of the internal iliac artery in the pelvis. The ligature of the internal iliac artery has been attended with a high rate of mortality—70 per cent.,—the causes of death being secondary hæmorrhage, uræmia, and various septic inflammations. In some cases the operation has been attended with very considerable difficulty. Dr. Dennis proposes to obviate these dangers by opening the abdominal cavity in the middle line, turning out the omentum and small intestines, and then, having clearly defined the artery, to divide the peritoneum over it and pass a ligature: the whole being conducted with stringent antiseptic precautions. He has himself practised this treatment in two instances. The first case was one of double gluteal aneurysm in a woman sixty years of age; both internal iliac arteries were tied; the patient died on the fourth day from suppression of urine. His second case was in the person of a girl eighteen years of age with what appears to have been aneurysmal varix of the left buttock, the evidence given in the paper not showing that there was any aneurysm proper; the internal iliac artery was tied, and the patient made a good recovery, the only complication being albuminuria for the first two days. A third case in which the same operation was performed is related by Dr. Dennis; it occurred in the practice of Dr. Locke Chew, in the person of a negro forty-six years of age, in whom a spontaneous gluteal aneurysm developed; the internal iliac artery was tied, and the patient made a good recovery. There are three quite distinct points which must be kept separate in estimating the value of Dr. Dennis's suggestion, which has the support of at least two admirable cases. The first of these is the propriety of ligaturing the internal iliac artery for gluteal and sciatic aneurysms; of this there seems no room for doubt, the Hunterian operation offers a better prospect of cure than any other known means. The second is the value of antiseptic surgery in this operation; the almost entire freedom from suppuration obtained in these three cases is the result of that, and not of the mode of operating, and there can be no doubt that the operation performed without opening the peritoneal cavity would give very different results in the hands of careful antiseptic surgeons from those hitherto obtained. The third point is the most convenient and best way of reaching the artery. Three ways at least suggest themselves—the old retro-peritoneal operation, laparotomy without removal of the intestines, and laparotomy with removal of the intestines. Dr. Dennis is very emphatic that "laparotomy in no way increases the danger of the operation, and that it is of very great advantage to remove the intestines from the abdominal cavity, as this gives the operator an easy access to the artery." On both these points there is room for difference of opinion, and we must await further experience before a definite opinion can be expressed. In any case Dr. Dennis's paper is a valuable contribution to surgery. We could have wished for fuller details than are given in the report, especially with regard to the condition of Dr. Dennis's second case, the account of the symptoms of which is meagre.

THE LANCET.

LONDON: SATURDAY, MARCH 26, 1887.

THE breach between the conjoined Colleges and the Society of Apothecaries continues to widen. In spite of numerous efforts to adjust the differences between these bodies, there is no diminution in the obdurate resistance with which the very reasonable desires of the Society have hitherto been met. The late resolution of the General Medical Council earnestly advising the Colleges to reconsider their position and come to an agreement has, notwithstanding the zealous support of the direct representatives of the great body of medical practitioners, effected nothing in the way of reconciliation. On the contrary, it has, like every other effort in the same direction, served only to strengthen the resistance opposed by the Councils of the Colleges to any arrangement with the Society of Apothecaries. Though stated in terms of studied moderation, while at the same time clearly expressing the wish of the General Medical Council, the request has met with an unqualified refusal. We shall, therefore, in all likelihood find ourselves involved, perhaps more deeply than ever, in those very difficulties which it is the object of the Conjoint Scheme to remove. The Colleges and the Hall will henceforth be driven to compete with one another. A diploma, one of the far too numerous minor medical qualifications, will be invested with increased powers, and, for anything we can see, with increased popularity. Such a result, as is now sufficiently well known, is viewed with lively and natural apprehension by the great body of alumni of both Colleges. They foresee that the contest is fraught with possibilities of evil for the contemplated new London degree. The latter must in any case hold its own with the similar qualifications of existing universities, and it should by all means be spared the opposition of the remodelled diploma of the Apothecaries. It is somewhat difficult to ascertain the individual opinions of the members of the Comitia of the Royal College of Physicians on account of the secrecy which attends their deliberations. A greater degree of publicity would probably better subserve the interests both of the public and the College. We have reason to believe, however, that some of the Fellows do not even admit the probability of competition between the conjoint qualification and the licence of the Society. In their eyes the former is a thing by itself; it has no relation to any other diploma, consequently any suggestion of rivalry between it and the licence is out of the question. To reason thus may be logical after a fashion, but it is not practical. Whatever the authorities of the College may think, an actual competition between the two qualifications must be one result of their short-sighted and ill-advised policy—a result the significance of which cannot be ignored. The Society is determined to exert its right of appeal in order to obtain the requisite powers of examination in surgery. There is little, indeed no, doubt that those powers will be granted, and there is an absolute certainty that the influence of competition thus awakened will tell seriously against the work of the Colleges themselves, without in any way adding to the public good. As regards the general population, indeed, the prospect rather is that the exclusion of the Apothecaries' Society may become a disadvantage, which would be avoided by the adoption of an opposite course. When the powers applied for by the Society have been acquired, and a new class of practitioners (capable as regards the fulfilment of every legal condition, but with an admittedly lower qualification) is annually sent forth into professional life, we shall understand how sorely the cause of medical education has been wounded in the house of its friends, and practitioners will note how little their interests are considered by the Colleges of Physicians and Surgeons. The alternative policy should have been by no means difficult of adoption. All that is asked for on behalf of the Society of Apothecaries is the privilege of examination in certain subjects—botany, pharmacy, and chemistry—which it may fairly claim as natural to its province. The demand is a very moderate one. Its refusal is most unwise as well as illiberal, and we doubt much if the medical world in years to come, when it has to deal with the hydra of multiple qualifications, will readily forgive those who in our time are carelessly tossing aside the golden opportunity of curtailing that evil, at least in London. It is exceedingly doubtful whether the same question which is pressing for solution in Ireland will be settled otherwise than it is likely to be in London. In the interest of medical education and practice we hope for it a happier fate.

BY degrees London is being cleansed of its sores; the worst areas are being gradually cleared, and are being replaced by dwellings which, if not wholly free from objection, are a very distinct advance upon those which they replace. In no district of London has greater or better use been made of the legislation which dates from the year 1875 than in St. Giles's, where, thanks to the efforts of an able officer of health and a public-spirited vestry, changes have been brought about which have raised one of the most insanitary districts of the metropolis to a position which is very different from that it formerly occupied among other metropolitan parishes. The work of improvement has not been done without cost to the metropolis, but London will gladly bear the expense which has been incurred, for its prosperity is largely dependent upon the health of its inhabitants. London, however, is now represented by the Metropolitan Board of Works, and it is no secret that this Board does not regard with unmixed satisfaction the expenditure of large sums of money upon the removal of conditions which are prejudicial to health. Improvements of main thoroughfares, which all the world can see and admire, are more readily undertaken than those of some hidden area, which are, as a rule, known only to its own denizens and the few officials whose duties require them to be intimately acquainted with its evils.

Of this tendency there has been recent example. The Shelton-street area was reported by Mr. S. R. LOVETT, Medical Officer of Health of St. Giles's, to the Metropolitan Board of Works in 1883, under the Artisans and Labourers' Dwellings Improvement Act, 1875, but it was not until some nine months later that a Committee of this Board visited

the spot, and then only with the result that they declined to prepare a scheme for its improvement; but the St. Giles's Board persevered with their intentions, and communicated to the Home Secretary a copy of the medical officer's report. In the beginning of 1885 an inquiry was held by order of the Home Secretary into the correctness of the report, and subsequently Lord CROSS himself inspected the site. The outcome of these proceedings was that the Metropolitan Board of Works were required to prepare a scheme, and the official inquiry which was held in consequence terminated last Saturday.

The nature of this investigation was such as to sadly perplex anyone not conversant with English procedure. The Commissioner, Mr. CUBITT NICHOLS, who was appointed by the Home Secretary to conduct the inquiry, was himself the official who had advised the necessity for the Metropolitan Board to prepare the scheme, and the authority whose duty it was to adduce evidence on behalf of its confirmation was the very Board which had previously declined to move in the matter. Notwithstanding these anomalies, the necessary facts were elicited, and no doubt can exist in the mind of anyone who heard the evidence, or who had inspected the site, of the urgent need for its improvement. The condition of the houses, the absence of sufficient back space, the impossibility of their ventilation, as well as their faulty arrangement, make it no matter for surprise that disease was rife among the inhabitants. In the four years from 1882 to 1885 the death-rates had ranged from 32·5 to 51·9 per 1000 of population, and an analysis of death-rates led to the same conclusion—that the area was unhealthy in a high degree, and that nothing short of its complete clearance would afford an effectual remedy.

The scheme which the Metropolitan Board have submitted for approval is by no means the best that could be designed. The desire to minimise the cost of the undertaking has, we believe, led them to hinder for many years to come the full changes which are distinctly needed. It is within the province of the Home Secretary to improve the plan proposed, and we trust he will do so with no illiberal hand. The enormous expense to which London is put through outbreaks of infectious disease is perhaps no concern of the Metropolitan Board, but is of vast importance to the ratepayers. To the steps already taken by Mr. LOVETT and the St. Giles's Board of Works is greatly due the freedom from typhus fever which London now enjoys. In past years St. Giles's was again and again the centre from which this disease spread to other parts of the metropolis, and the money spent in improvements of the district has already made ample return in leading to the disappearance of this serious cause of mortality. But this is not all. It must not be forgotten that high rates of general mortality are accompanied by high rates of sickness, and that sickness amongst the poor is attended by increased expenditure in poor relief. The interests of the ratepayers are, therefore, best consulted by the removal of those causes which tend to produce ill-health and its companion, poverty.

It may be hoped that this long-delayed improvement will be speedily carried into effect, and that no desire to lessen its cost will prevent the scheme being made in every sense of the word complete. There is no better investment of public money than that of purchasing health for the inhabitants of this crowded city, and the Metropolitan Board of Works may reckon upon the approval of the more thoughtful of the London taxpayers, if they utilise in the best way the powers with which they are endowed.

SIR RUTHERFORD ALCOCK, in another letter to *The Times*, returns to the subject of the impecuniosity of the London hospitals. This vast metropolis, with its unequalled wealth, its assessable property of £25,363,550, and its ever-increasing luxury, cannot, or rather does not, support its 150 charitable institutions for the treatment and comfort of the sick poor. None of them have yet actually closed their doors, but many have closed some of their wards. The supply of beds is seriously curtailed, and all these institutions are being carried on with a wholly inadequate support and are in a state of chronic insolvency. The great majority of the inhabitants do not subscribe at all—only 100,000 out of 4,000,000, or 2½ per cent. Sir RUTHERFORD ALCOCK does little more than repeat himself and his thesis. He takes occasion to show how unhelpful the critics of his first letter have been. Mr. BURDETT'S evidence that more is raised now than before the establishment of Hospital Sunday does not alter the fact that what is raised is still wholly inadequate and utterly unworthy of the wealth and the charity of London. Mr. BOUSFIELD'S lament of the unsuccess of the provident dispensaries is to little more purpose; and his complaint that Sir RUTHERFORD ALCOCK has too exclusively advocated the collection of unlimited funds for the maintenance of the present unorganised competition of medical charities is sufficiently met by SIR RUTHERFORD'S suggestion in his former letter that a Royal Commission should be appointed to inquire, amongst other things, if any better administration of hospitals can be devised. Sir RUTHERFORD ALCOCK will be readily acquitted of any want of sympathy with wise attempts to organise charity. He is notoriously one of the leading spirits in the Metropolitan Society for the Organisation of Charity. But his perception of the enormous need for hospital beds in a population of over 4,000,000 of people and sense of the depressing inadequacy of the support forthcoming fills his mind, and he is fain to confine himself to this one complaint until it be realised and felt by all classes, the working and the wealthy alike.

Sir RUTHERFORD ALCOCK is not without hope in connexion with the Jubilee. Her Majesty's intention is to devote a considerable amount of what is raised to some charitable object of adequate scope; he thinks the London hospitals in their present distress may well commend themselves to the ever-ready sympathy and consideration of the QUEEN. The London hospitals can only hope to benefit, of course, by money raised in London. But, as we have urged from week to week, no cause can compare with theirs in strength of claim. If this resource should fail and no substantial help should come out of the City parochial charities, nothing remains but a hospital rate, which would, with many objections, have this recommendation that it would make all contribute according to their means to this great object. Still, we trust, for the credit of old English charity, that it will not come to this. Hospitals supported by rates and administered by ratepayers would be very different things from the institutions of which we are all proud. They would be claimed, as of right, by those who

used them, and by many whose cases were not fit, and all that personal kindness and gratuitous service which we associate with the provision and administration of hospitals in England, would be replaced by paid labour and officialism. They would differ but little from workhouse infirmaries. If this dismal change is to be averted, liberal gifts will have to be made, and made soon. Millionaires could remove the debt of every hospital in London, and leave to their less plethoric fellow-citizens the duty of endowing each approved hospital with a sum that, with current subscriptions, would restore the equilibrium of the finances and the peace of anxious committees. But no time is to be lost. A few leading citizens, a few leading physicians and surgeons, and the treasurers of the great hospitals in co-operation, might even now place this cause in the very front of those events that will make the Jubilee of Queen VICTORIA memorable in all after-time.

PROFESSOR ROMANES made the "Mental Differences between Men and Women" the topic of a lecture recently delivered at the Royal Institution. The views his remarks disclosed are those which must, we fancy, be entertained by every well-informed and unprejudiced observer. Mental differences do exist between men and women, which are not simply the differences between individuals of the two sexes, but of a nature to show that they depend upon the diverse characteristics and purposes of the two classes of organic development. And these differences, when they come to be studied closely, will be found to partake very much of the nature indicated by Professor ROMANES when he hinted that women are gifted with a more acute and facile power of acquisition than men, while they are less able to originate ideas, and therefore not so well qualified to take the lead in intellectual work. Professor ROMANES alluded to the somewhat smaller average weight of the brain in women than in men, the difference being about 5½ oz. The average male encephalon has been said to weigh 49½ oz., while the female average weight has been put at 44 oz. There are, however, very great variations. Of 278 male and 191 female brains, the smallest male weighed 34 oz., while the largest weighed 65 oz. The male encephalon in 170 cases out of the 278 ranged from 46 oz. to 53 oz. The smallest female brain of the total 191 weighed 31 oz., and the largest 56 oz.—that is, 9 oz. less than the weight of the largest male brain. Of 125 brains selected from the 191 female brains, the weight ranged from 41 oz. to 47 oz. So that we may say the average male encephalon weighs from 46 oz. to 53 oz., while the female weighs from 41 oz. to 47 oz. Thus, speaking broadly, it is correct to affirm that the male brain is heavier than the female, and those who, perhaps too hastily, measure the mind by the absolute brain-weight, infer that in its totality the mind of man must be greater than the mind of woman. This, however, leads us to make a remark which we do not remember to have encountered—namely, that as there is very little difference between the proportionate weight of the cerebellum to the cerebrum in the two sexes, the proportion being as 1 to 8¼ in the male and as 1 to 8¼ in the female, there scarcely seems ground to infer from the existence of a smaller brain in woman than in man that she is necessarily inferior in proportional mental powers because it cannot be forgotten that woman has on the average a much smaller organism than man. It has not, so far as we are aware, been proved, or even seriously contended, that a small man with a proportionally full-sized though actually small brain is not intellectually as good as a larger man with a brain only proportionally greater in size. We know that it has been the practice to weigh brains without reference to the total weight of the bodies with which they were associated, but this has always struck us as an unfair proceeding. It would, we believe, have been found to explain most of the discrepancies between actual mind-power and brain-weight which have done violence to the prejudices of those who weighed the understanding solely by the brain, to take into consideration the weight of the whole body. In short, we venture to urge that it is not, in our present state of knowledge at least, a justifiable proceeding to measure the mind by the brain without taking into account the organism of which the brain forms part. It may well be that a small brain in a small body may be equally effective as a mind-organ as a larger brain in a larger body; and it follows that too much importance may be attached to the fact that the average weight of the female brain is less than the average weight of the male brain, because the average weight of the female body as a whole, including the brain, is less than that of the male organism, and it has not yet been shown that the female brain is smaller *proportionally* than the male. We think "the mental differences between men and women" are rather differences of kind than of degree, and this will accord with the inferences of Professor ROMANES, though it may not so closely accord with the facts by which he seeks to support them. There are great differences in mental power and capacity between men and women, and we believe they are of a nature to render impracticable the levelling views and purposes of the promoters of uniformity, but it is not upon such coarse data as those of relative weight that the differentiation of mental power as exhibited by the two sexes can be satisfactorily established or elucidated.

THE nature and mode of action of the poisons of venomous serpents have always attracted considerable attention. The effects of snake-bite are so striking in their rapidity and severity as to stand in great measure apart from other animal poisons. Much was learnt of their constitution by the researches conducted by Drs. FAYRER and BRUNTON in 1872–75, and still more has been added to our knowledge in a monograph by Dr. WEIR MITCHELL and Dr. REICHERT, recently published by the Smithsonian Institute. These researches, although limited to a comparatively few species of snakes, including, however, the most venomous, bear out the view long since advanced by the first named, that snake venom is not simple, but that it contains one or more poisonous substances. In the first place, it must be acknowledged that the poisons are of chemical nature, and not vital or the product of vital action. They do not fall, then, into the class of ptomaines or other alkaloids which are the result of organised vital activity; for although micrococci are described in the fresh venom capable of multiplication, no support is gained to the idea that they have anything at all to do with the

toxic action. The venom is, however, found to yield proteid matters which are held in solution, and can be separated by dialysis into coagulable proteids or globulins, and non-coagulable proteids or peptones. In some venoms the globulins are further capable of subdivision according to their reaction, but in cobra venom there is only one globulin, and a peptone which differs from others in being coagulated by prolonged boiling and not being precipitated by mercuric chloride and absolute alcohol.

Drs. WEIR MITCHELL and REICHERT have submitted to a most careful physiological analysis these different products of snake-poison, and their interesting conclusions deserve to be widely known. The venoms resemble closely the salivary secretions of other vertebrates; and their active principle, which can be maintained in the dried state or in such preserving fluids as glycerine and alcohol, is contained in the fluid part of the venom only. This active principle is divisible, probably in all cases, into two classes of proteids—globulins and peptones—of which the former may consist of several distinct principles. If taken into the stomach during the intervals of digestion the poisons may prove fatal, provided that they contain a sufficient quantity of dialysable peptone, whereas during digestion they are rendered harmless. The chief local antidotes are permanganate of potash, ferric chloride, and tincture of iodine. The venom has a powerful local effect upon the living tissues, inducing more rapid necrotic changes than any other known organic substance. It renders the blood incapable of coagulation, and exerts a local effect on the capillaries, so that extravasation occurs from the vessel walls being unable to resist the normal blood-pressure, those capillaries yielding most which are nearest to the larger bloodvessels, and ligature of vessels lessening the amount of extravasation. The altered condition of the corpuscles, which become soft and spherical and tend to fuse together, is a further aid to the escape of blood into the tissues. Sometimes this extravasation occurs into the substance of organs—as the brain, kidneys, or heart. The effect of the venoms was also carefully noted upon the respiratory and nervous systems and on blood-pressure. They show that changes in the pulse rate following administration of the venom depend upon two antagonistic factors: the one, which excites the accelerator centre, tending to increase the rate; the other, which acts directly upon the heart, tending to diminish it. The variations noted in the arterial pressure were attributable in the main to three causes—viz., depression of the vasomotor centre, depression of the heart, and capillary obstruction. The respirations are primarily increased, and secondarily diminished in frequency; these being again due to the operation of two antagonistic factors—the one an irritation of the periphery of the vagus, the other a depression of the respiratory centre. Death may occur through the paralysis of the respiratory centres, or cardiac paralysis, or hæmorrhages in the medulla, or from the widespread destruction of the red corpuscles. The research clearly proves that the antagonistic and varying physiological effects depend upon the admixture of the separate principles—the globulins and peptones; and comparative study shows that the globulins are the chief agents in the blood-destruction, and in producing changes in the capillary walls; whilst they also act more upon the accelerator centres of the heart, and are therefore responsible for the increase in pulse rate; and, further, they are the chief cardiac depressants and paralysers of the respiratory centres. In some respects, then, the globulins must be considered as more toxic than the peptones, which, although active in producing œdema and necrosis of tissue, have little power in preventing coagulation or in altering the corpuscles and capillaries; moreover, these constituents act on the blood-pressure, and are the chief factors in increasing the respiration rate by acting on the periphery of the vagi nerves.

The great merit of this research is the demonstration of these distinctions in the constituent poisonous principles, pointing to the differences in the action of different kinds of snake-bite, being explained by the relative predominance of one or other of the constituents. Thus in crotalus venom there is a much greater proportion of globulins than in the cobra venom, which may explain the marked local destructive effects of the former as compared with that of the latter; but the peptone of cobra venom would seem to be more active in proportion than that of the crotalus. The conclusion that, owing to their proteid nature and close relation in composition to the blood, it is almost futile to seek for a chemical antidote—for what would destroy the poison would have a similar action on the blood itself,—is, in spite of its hopelessness, unfortunately in accord with experience. What is required, and what should be sought for, is a physiological antagonist rather than a chemical antidote, and in this direction we may look for research to tend in the future.

THE report of the last Council meeting of the Royal College of Surgeons was unusually interesting from more than one standpoint. In the first place the Council have decided to rescind their former resolution to grant the Fellowship to members of fifteen years' standing without an examination in anatomy and physiology. We have more than once pointed out that such a method of bestowing the Fellowship would tend to deprive this diploma of some of its present academic status; we therefore gladly welcome the determination of the Council not to persevere in this course. The Council offer as their reason for rescinding the resolution the difficulties involved in giving effect to the resolution in the new Charter about to be applied for. Surely this is a very weak and paltry excuse. There could be no difficulty in inserting a clause in the Charter in the sense of the resolution, if the Council chose to do so. A far better reason, we think, exists in the incongruity of instituting a high-class diploma in surgery to promote the science and art of surgery, and then in giving this diploma away wholesale without adequate test examinations, merely for the purpose of increasing the number of Fellows, which was the avowed object of the Council in proposing changes in the existing conditions.

While congratulating the Council on their present change of tactics, we cannot resist the suspicion that the real cause for this rescission lies in the absence of any clear and well-defined policy on the part of the Council, and in their having acted hurriedly. These questions were not well weighed: they were not discussed as part and parcel of a general policy, nor were they submitted to the Fellows and Members previously to being formally and finally discussed in the

Council. The proposed change was just one of those which could advantageously have been submitted for discussion. Would the Members care for a Fellowship diploma on those grounds? Would Fellows approve of an extended Fellows' list with the avowed object of simply increasing their number? Thus the Council is in the rather undignified position of rescinding a resolution—that is to say, of undoing at one meeting what they had done at a former one. On the other hand, the Members have already publicly declared their unwillingness to accept the Fellows' diploma on the terms offered. This rescinding reminds us of the memorable statement made by the then President at the general meeting of the Fellows and Members in 1884, about Resolutions of the Council which were binding and others which were not binding; and of more recent occasions—as for instance, when the Council decided not to accede to the recommendation of the Association of Fellows to create Honorary Fellows, and then within a few months changed their minds and decided that they would create a new class of Honorary Fellows.

The memorial from teachers in surgery concerning the proposed disposal of the ERASMUS WILSON legacy was referred to the Committee on the Extension of the College Premises. It is to be hoped that this Committee will give way in part on such a question as this. We believe that but a very small minority of the Council are at all strongly in favour of enlarging the present museums. The days of putting up mere "pickles" are past and gone. The interest of museum specimens lies not in their size so much as in a careful examination into their minute structure, their intimate nature, and mode of growth. For such studies as these laboratories are needed rather than more shelf-room for unstudied, and often unintelligible, crude specimens. The College of Surgeons' Museum is at present too much composed of bottle preparations. To spend this legacy in increasing these museum specimens is a waste of money, not justifiable while London, of all capitals in the world, is the only one in which adequate laboratories for scientific work are still unknown and non-existent. We can only hope that the Council of the College of Surgeons will not neglect this chance of helping to put London on an equality with Edinburgh and with foreign capitals in teaching capacity, and of filling a hiatus in the teaching apparatus which is of vital importance to its completeness.

Annotations.

"Ne quid nimis."

DEGREES FOR LONDON MEDICAL STUDENTS.

THE communications laid before the Fellows of the Royal College of Physicians of London, which are referred to in another page, presage a stormy career for the Charter now being drawn up by the two English Colleges conjointly. The Irish Colleges plainly say that they intend to ask for like privileges, and the Scotch Colleges intimate that, contrary to their desires, but as a necessary measure of self-defence, they will be obliged to take a similar step. The University College of Bristol appeals against a residential qualification being included in the terms on which a degree is to be granted, whilst King's and University Colleges have made a formal joint application to be included in the movement, and furnish the Arts and Science Faculties, leaving that in Medicine under the control and management of the two Royal Colleges. The letters from the Bristol College and from King's and University Colleges were referred to the Committee of Delegates, whose next meeting will be held shortly. The two most difficult points in the scheme will then be before them for consideration. Shall residence be a *sine qud non*, and, if so, for how long a period? Shall the Colleges ask for a purely professional degree, or will they co-operate in forming, and take the initial step in creating, a new and a real University in London? It is difficult to understand the position of the Colleges, in putting into the foreground of their claim the advantages and superiority of clinical teaching and clinical opportunities in London, if some residential period is not insisted on, and this might be for the twelve months preceding the examination for the M.D. degree. We see no reason whatever why every candidate should not be compelled to attend definite courses in clinical subjects in London in order to obtain a London degree, which would be quite a special honour, and differ *in toto* from the mere qualifying titles granted by the Conjoint Examining Board in England. It is evidently clear that University and King's Colleges will go to the Government for a Charter to grant *non*-medical degrees, and that the Councils of those bodies would rather assist the Royal Colleges than be in opposition to them, and we hope that a conference may be held so as to allow a joint action to be pursued. The feeling against a purely professional degree is very strong in medical as well as in outside circles, whereas everyone acquainted with the higher education in London recognises the need for a real Teaching University, of which those Colleges only can constitute the non-medical factors. The opportunity for doing the work which the present University deliberately threw away is once more to the front, and we hope that the occasion for removing a grievance under which the metropolis, alone among great cities, is now suffering will be seized and promptly acted on. The Irish and Scotch Colleges are obviously animated by mere personal considerations. They cannot say for a single moment that Trinity College and the Royal University in Ireland on the one hand, or the Scotch Universities on the other, stand in a position as regards Dublin or Edinburgh students comparable with that in which the University of London places itself in reference to London teachers or London students. The latter is an imperial examining board with a mere habitation only in London; the others are local universities, and a local university is what London asks for, and against its formation no fair contention can be urged.

FEVERS AND FIRES IN BLACKPOOL.

IN his recently issued report on the health of Blackpool Dr. Henry Welch draws the serious attention of the sanitary authority to the want of preparedness on their part to deal properly with cases of infectious diseases by means of isolation. He says that for four years he has vainly endeavoured to persuade them to provide proper accommodation, that the borough is still not one whit nearer its possession, and he fears that nothing but a serious epidemic will awaken the sanitary authority to a sense of its duties in this respect. The advice thus given has been locally received in two very different fashions. The *Blackpool Times* evidently recognises in Dr. Welch the authorised local adviser in such a matter, and by supporting his views it shows that it appreciates the unflinching honesty with which the best interests of the town have been advocated by him. It goes on to remind its readers that Dr. Welch by no means stands alone in condemning the insufficiency of the existing hospital provision. Thus, it quotes Dr. Thorne Thorne, who, in his official report, describes the building as badly situated

—hidden as it is behind a cemetery,—as faulty in construction, and as so imperfect in its accommodation that the medical practitioners in the town did not feel justified, except under special circumstances, in recommending their patients to resort to it. This was in 1879, but quite recently Dr. Page, also of the Local Government Board, felt it his duty to urge upon the authority the provision of "adequate hospital accommodation for infectious diseases." But the *Blackpool Gazette* adopts a precisely opposite tone. It takes the officer of health seriously to task for the performance of his duty in this matter. It talks of "blatant alarmists"; of the prospects of the season being injured "by the professional alarmists and gadling idlers of the borough"; and, with reference to the possibility of an epidemic, it rejoices in the fact that "we haven't got an epidemic." It then goes on to seek a simile in order to enforce its retrograde views. Noting the reference which Dr. Welch has made to the possibilities of an epidemic, it proceeds to say that the next discovery that will be made will be that "if all the houses in Blackpool took fire at once, the present fire brigade would be unable to cope with the flames." How this most inappropriate simile could have been put forth will surprise all who have the most rudimentary knowledge of the subject under consideration. Neither epidemics nor fires seize upon all houses "at once." Both the medical officer of health and the superintendent of the fire brigade know that epidemics and fires have beginnings, and that in order to prevent those beginnings from becoming wide extensions, over which the authority and their officers will lose all control, it is necessary to have the means for dealing with the first signs of the evil. We can hardly conceive that Blackpool has no sufficient means for extinguishing the ordinary fires to which such a borough is subject, and which, if not checked by efficient means, would end in a widespread and disastrous conflagration; neither do we imagine that the authority are priding themselves on any such unpreparedness, because "we haven't got all the houses on fire at once." But, on the other hand, we do know that they have not the means for properly isolating at the same time the most insignificant number of two or three different infectious fevers, such as every town with a population such as that of Blackpool is always liable to, and which a seaside resort on the Lancashire coast is exceptionally likely to receive; and all that Dr. Welch and others ask for is that, on the basis of the provision made by all sensible people for the prevention of fires, adequate provision should be made for the simultaneous isolation of a few cases in both sexes of the several current infectious fevers, and this without subjecting those who quit their houses for the protection of the public health to the risk of contracting a disease other than that for which they are professedly isolated. Perhaps we shall next be told that these, too, are alarmist views, and that the absence of the needed provision has not been associated with the occurrence of any epidemic. If so, we trust that the simile of fire prevention will still be adhered to, and that the inhabitants will be advised to drop their fire insurances and to trust to some old leaky parish fire-engine, on the ground that there has for years past been no general conflagration in the borough. But, quitting this unfortunate simile, we would remind Blackpool that its credit as a health-resort demands the limited provision which is asked for. The borough is one of those which has adopted the compulsory notification of infectious diseases, and the public naturally imagine that the sanitary authority wanted to know where infection existed in order that they might take the ordinarily received means of staying its spread. As yet this has not been done in the matter of isolation provision, and we would urge that the true interests of the borough—including its financial interests—will be best served by giving heed to the advice of their medical officer of health in this respect.

THE VARIATIONS IN THE SPECIFIC GRAVITY OF THE BLOOD IN HEALTH.

MR. E. LLOYD JONES has lately been investigating this subject, and has adopted, with some modification, the principle of the plan suggested by Professor Roy to determine the specific gravity of the blood. Professor Roy simply introduced a drop of the blood to be examined, taken up by a hypodermic syringe, into a mixture of glycerine and water of known specific gravity, observing whether the blood tended to rise or sink in the solution. Mr. Jones found that a better method was to use a fine glass pipette, the point of which was bent at a right angle. When the point was brought into contact with the blood a small quantity immediately entered the tube, and the point being then introduced into a mixture of glycerine and water of known specific gravity the blood could be blown out horizontally, and its disposition to rise or fall could be instantly seen. About thirty test mixtures of definite specific gravity were used, the conclusions at which Mr. Lloyd Jones, whose paper is contained in the last part of the *Journal of Physiology* (No. 1, 1887), were as follows: The specific gravity of the blood is highest at birth, being at a minimum between the second week and the second year, and rising gradually to a point attained in the male between the ages of thirty-five and forty-five, in the female after the climacteric. Mr. Jones finds, as a rule, the specific gravity of the blood tends to be higher in the male than in the female, and that in the female the child-bearing period is marked by a fall. The specific gravity in the two sexes is probably only the same at the extremes of life. The effect of pregnancy was found to be that the specific gravity of the blood was slightly diminished, though it still remained well within healthy limits. In regard to food, the immediate effect of mixed food is to cause a fall in the specific gravity of the blood; if alcohol were taken this fall was not observed. Exercise, if gentle and not too prolonged, causes a fall in the specific gravity; if perspiration becomes well marked the specific gravity rises, as it does when violent exercise is taken. The conditions of the circulation in the affected part modify the specific gravity of the blood circulating through it. It is always high in a passively congested part. It varies also in different parts of the body. It exhibits a certain diurnal variation, tending to fall during the day and to rise at night.

LONDON WATER-SUPPLIES.

THE report of General A. de C. Scott, the metropolitan water examiner, for the month of January has been issued, and, as the author states, is compiled from information collected under instructions issued by the late water examiner, Sir Francis Bolton. The results of the analysis of the different waters supplied to London will be read with interest. The Thames water supplied by companies from this source was characterised by the large proportion of organic matter present in all cases; in the previous month this pollution was limited to the water of the Grand Junction and Southwark Companies, but in the following month the whole of the Thames-derived waters had become equally affected, samples of the two first-mentioned companies containing finely divided suspended matter, which was found on microscopic examination to contain living organisms. The water drawn from the Lea and distributed by the New River and East London Companies also showed a very marked increase in organic matter as compared with the December samples. The pollution is said to be due to the floods; however this may be, it is no great consolation to London water-drinkers. In a letter appearing in *The Times* of last week, attention is called to the pollution which "is poured into the Upper Thames by the tributary streams which discharge into its

waters the sewage of towns and villages, the filth of paper-mills and other works, and farmyard drainage." The town of Staines especially discharges all its sewage into the same river in uncomfortable proximity to the intakes of the water companies. The Thames has indeed been described as the natural outlet for sewage, and if this is to be accepted we are compelled also to regard London water-drinkers as the natural consumers of Staines sewage. The purity of London water-supplies calls loudly for improvement; the story of cholera in 1866, spread through water, has been too soon forgotten, and London possesses no organisation or administration which will enable a very definite danger to be seriously considered. It is, indeed, to be feared that some great calamity will be required to bring about a radical change in the sources of London water-supply.

EFFECT OF MASSAGE ON EXHALATION FROM THE LUNGS AND SKIN.

DR. STABROVSKI has published a series of laborious researches made with a view to determine the effect of massage upon the pulmonary and cutaneous exhalation. They were carried out in Professor Manassein's wards in St. Petersburg on fourteen persons, nine of whom were in good health and the remaining five convalescent from various acute diseases. In each case the duration of the observations was ten days, during the first five of which massage was practised. Deep kneading was practised for the first two days, after which the body was washed over with a wet sponge to remove the fatty matter adherent to the surface of the skin. During the next two days deep rubbing was practised, and then the wet sponge used again. On the fifth day deep rubbing with the dry hand was practised. The massage took place at 10 A.M., except in two cases, where it was performed at 7 P.M., with the object of observing its effect on nocturnal perspiration. The sittings were of an hour's duration. The results in the different cases were discordant. In five cases there was an increase in the pulmono-cutaneous exhalation and a diminution in the amount of urine, the increase occurring shortly after the massage, so that when this was practised in the morning the perspiration was increased during the day, but became normal during the night. Similarly the quantity of urine fell during the day and rose again at night. In three cases the massage increased the quantity of urine and diminished the pulmono-cutaneous exhalation. In the remaining six cases both the urine and the pulmono-cutaneous exhalation were increased during the period of massage. The general effect on the pulse was to lower it some ten or fifteen beats. No alteration appeared to be produced in the rate of respiration.

RAT POISONS.

AN inquest was held last week by Mr. Wyatt, the coroner for Camberwell, on the body of a young man who was found dying on his doorstep. The deceased recently lost his situation, and shortly afterwards quarrelled with the young woman to whom he was engaged. He was subsequently heard to remark that he had not a friend in the world, and that he contemplated putting an end to his existence. Dr. Power stated that he had analysed the contents of a box of rat poison found on the deceased, and discovered that it consisted of pure arsenic. There was more than enough to poison the whole street, and it could be purchased by any child at the nearest chemist or oilshop for a penny. The jury returned a verdict of "Suicide whilst in a state of unsound mind," and expressed the usual opinion that the indiscriminate sale of deadly poisons was not desirable, and that it would be as well if something could be done to put a stop to it. We have frequently pointed out that the various rat poisons and rat pastes now so extensively sold afford the public a wonderfully easy means of obtaining in unlimited quantities a selection of poisons without the inconvenience of question or inquiry of any kind. One of these preparations contains arsenic, another is composed of strychnine, whilst a third consists of arsenic, strychnine, and phosphorus combined—in fact, the choice is unlimited.

THE CHARGE AGAINST GUY'S HOSPITAL.

A MOST opportune and striking illustration of the straits to which even our great hospitals are reduced has lately happened. The public is, of course, very much shocked. But what a pity it is that the public was not shocked long since into doing more for the hospitals, and enabling them to provide more beds for patients. The case was that of a poor man who fractured his fibula. He was kept in hospital for the night. A plaster-of-Paris bandage was, after a few hours' rest, applied, forming a splint, and as the bed was wanted for a worse case, the poor fellow was treated as an out-patient and sent home, crutches being supplied to him by the hospital without charge, though the contrary has been alleged. His circumstances were poor and he applied at and was admitted into the Strand Workhouse. It is to be regretted, perhaps, that such a case should have to be sent out of a London hospital so quickly. But, as Dr. Steele points out, it is inevitable, unless the hospitals are better supported. Many fractures of the fibula can be dealt with summarily, as in this case. It is from want of charity that many patients cannot be supplied with a bed. But the authorities cannot put a quart into a pint pot. They must give their beds to the worst cases, and make out-patients of those for whom warmer charity would find a bed. Let the public realise that it is alone responsible for the straitened accommodation of the hospitals, and for this case being sent to a workhouse. Some such fate is likely to threaten all hospital patients unless more men like the founder of Guy's are forthcoming, and that quickly and in considerable numbers.

QUININE IN PNEUMONIA.

AT a recent discussion in the New York Academy of Medicine there was a general consensus of opinion upon the inability of quinine as an antipyretic in the treatment of acute pneumonia (*Boston Medical and Surgical Journal*, March 3rd). The subject was introduced by Dr. J. H. Ripley, who related his experience of the administration of the drug in large doses in cases where the temperature exceeded 103°. In two cases no reduction of temperature occurred; in two there was a slight rise in the temperature. The reduction that it did usually produce never lasted for more than from two to four hours. Not only, then, was quinine to be regarded as feeble and uncertain in antipyretic effect, but it was harmful from disturbing the digestive functions and producing cardiac and nervous depression. In one case opisthotonos was noticed; in many epistaxis; in one marked albuminuria with renal casts. Nor did it shorten the natural course of the disease. Dr. Fruitnight's experience coincided with that of Dr. Ripley; but he prescribed it for its tonic effect in small doses. Dr. Castle found that, if given in antipyretic doses, it must be at the expense of the nutrition of the patient, and during the last five years he had almost entirely abandoned the remedy in pneumonia. Dr. Billington, to obviate gastric disturbance, had given the drug in the form of a suppository. He also had been disappointed in its use as an antipyretic in pneumonia. Dr. Emmett Holt had given as much as sixteen to thirty grains a day to children from one to one and a half year old in cases of pneumonia, and felt that as an antipyretic it was useless in small doses and dangerous in large. Far better results were obtained from the cold pack. He

had now discarded the drug in acute pneumonia, but found it of marked advantage in convalescence. Dr. A. Jacobi, the President, remarked on the changes in opinion with respect to quinine; he had himself always prescribed from six to twelve grains to children, usually in full dose in two instalments in the morning when the remission occurred. He thought the condition of the stomach in the febrile state accounted for some of the intolerance mentioned, and preferred hypodermic injection of the carbamide. Dr. Ripley, in reply, said that in a large number of cases the quinine had been given hypodermically in the form of strong solution of the muriate; but Dr. Jacobi remarked that it was not safe to use too concentrated a solution for hypodermic injection, and mentioned a case in point.

ANTHRAX IN CHESHIRE.

A SEVERE outbreak of anthrax has occurred in Cheshire. It arose a fortnight ago on a farm in the township of Aston, several cattle, sheep, and pigs having been attacked; and the latest advices prove that the epidemic has by no means abated. The recent order of the Agricultural Department of the Privy Council has been issued none too soon, and the recommendations embodied in it ought to be strictly observed. We were struck by one of the remarks reported to have been made by the secretary of the Cheshire Chamber of Agriculture last week when introducing the fact of the outbreak to the notice of the members. He said that "no one had yet been able to point out the cause of this disease." Now if there is one infective disease the etiology of which is clearly established it is anthrax. The fame of Koch and Pasteur rests largely upon their discoveries in this direction, and the knowledge contributed by pathologists in this country on their investigations upon woolsorters' disease should surely be in the memory of scientific agriculturists. But we may be doing Mr. Rigby an injustice. He may merely have implied that the cause of the particular epidemic was unknown, and therefore the step taken by the Council of the Chamber of Agriculture to ask the Privy Council to send an inspector is to be commended. Isolated cases of anthrax have, we believe, lately occurred in other parts of the country, and it is highly important that no delay should take place in stamping it out.

ITALIAN MEDICAL CONGRESS.

THOSE of the profession who purpose spending their holiday next autumn at the Italian lakes or in the art cities of the Lombardo-Venetian territory might do worse than "enter an appearance" at the Congress of the Associazione Medica Italiana, to be held at Pavia. It will take them but little out of their way, and will, like its recent predecessors at Siena and Perugia, provide them with much that is novel, interesting, and instructive. If they are so minded, they can take part in its proceedings, French or even English being a recognised medium of communication at such gatherings. They will also make acquaintance with not a few celebrities in the healing art and its cognate sciences, who will be glad of an occasion to requite the hospitality which won so many a continental brother at our great International Congress just ten years ago. Full details of the meeting, including the date of its opening, its duration, and an outline of its business, may be had from the secretary of the "Comitato Pavese," now sitting. Pavia, for its own sake, is full of interest. To say nothing of its churches, its palaces, and its far-famed Certosa, rich beyond any other ecclesiastical edifice in Italy in early Renaissance and Roman-Gothic features, it has its university, once the rival of Padua in attractions for English physicians, and immortalised by teachers like Spallanzani, Tissot, Volta, and Scarpa, whose monuments ennoble its spacious courts and grand old library. Its imposing hall, completed in 1845 at a cost of 200,000 fr.; its Teatro Fisico, with statues of Galileo and Cavalieri, and a bust of Volta; its wealth of literature in medicine and physics, embodied in a collection of over 200,000 volumes, are some among the many points of contemporary interest possessed by the Ticinum of antiquity, the "domus paterna" of Cornelius Nepos, the scene of famous deeds under Theodoric, Charlemagne, and Francis I. The congress at which the profession is now invited to assist will be the twelfth of the series, and its working committee are not likely to fail in rendering it worthy of its predecessors and of the historic and scientific associations of its picturesque seat.

SPAYING IN THE STATES.

ON Dec. 2nd, 1886, at the Obstetrical Society of Philadelphia, Dr. Kelly related a case in which he had removed the ovaries and tubes for subinvolution. We cannot do better than give the words of the report in the *American Journal of Obstetrics*:—

"Dr. Kelly considers the indications in this case so well defined and new that he designs making it the subject of a more detailed critical communication. The patient, about thirty-five years of age, had raised five children, but for several years had suffered from constant soreness of the whole hypogastrium, a spot of intense burning pain to the left of the uterus, and a constant dark leucorrhœa. The menstrual congestions greatly increased her symptoms, which were again aggravated by several early abortions. She had been under excellent treatment before coming to Dr. Kelly, and had been carefully treated by him, but with only moderate temporary improvement. Dr. Kelly then decided to stop the menstrual function, with a view to checking the periodical determination of blood to the uterus, and finally bringing about complete involution of the organ. The ovaries and tubes were removed through an incision two inches long. The ovaries were full of pea-sized follicles, and covered with a dense capsule, and were probably (not, however, in consequence of these appearances) diseased. The speaker insisted that the operation here had no reference whatever to any disease which might be found in the appendages, but the sole indication lay in the state of the uterus; the ovaries, whether diseased or not, were removed to correct that trouble. The recovery was as perfect and free from disturbance as any slight injury, and the patient was up in the next room on the fourteenth day, when the uterus was free from tenderness and already rapidly undergoing involution.—Dr. Chas. Meigs Wilson considered oöphorectomy a resort of doubtful propriety as a remedy for metritis; for, as the menopause occurring physiologically would not stop such an inflammation, we would scarcely expect it to be of greater benefit when the result of an operation. He doubted the moral right of exposing the patient to the risks of abdominal section for such a condition."

We refrain from commenting on this case, and prefer to leave our readers to draw their own conclusions.

ITALIAN BEGGARS IN LONDON.

IT seems that the padrone system of importing beggars from Italy having been checked by the combined action of the Italian and English Governments, this device has been superseded by a system of parental emigration with families introduced for the same purpose. There is only one real remedy for this begging system, and that is for the free-handed—we will not say the benevolent, for it is not benevolence to encourage dependence on alms—to steel their soft hearts against entreaties and refuse to give money in the streets. If this were generally done we believe there would be much less real distress. "Begging" is a trade that ought to be starved out of existence, if only because it is a bad one for those engaged in it.

SCIENTIFIC MEMOIRS BY INDIAN MEDICAL OFFICERS.

WE note with pleasure the appearance of Part II. of the "Scientific Memoirs by Medical Officers of the Army of India," edited by Surgeon-General Simpson, M.D. The volume contains an interesting account by Surg.-Major D. D. Cunningham upon the effects which sometimes follow injection of choleraic comma bacilli into the subcutaneous tissues in guinea-pigs. Three out of five of such experiments were productive of symptoms closely resembling those of cholera, with abundant development of the comma bacilli in the intestine, and also in the peritoneal fluids. Dr. Cunningham's results are suggestive of the possibility of infection other than by the digestive tract, but he would doubtless be the first to admit that the experiments are hardly conclusive. Four papers deal with subjects of botanical and physiological interest. Surgeon-Major Barclay describes the life-history of a new Æcidium on Strobilanthes dalhousianus; and in another paper describes the character of Æcidium urticæ. Surgeon-Major Cunningham records his observations on the Phenomenon of Gaseous Evolution from the flowers of Ottelia alismoides, a plant very abundant in the tanks in and around Calcutta. Surgeon-Major King discusses the Fertilisation of Ficus hispida. Lastly, Surgeon-Major Bomford contributes a note on Eggs of Distoma (Bilharzia) hæmatobium, found in transport cattle, Calcutta. The parasite has never been found in India before, and the affected cattle had not been in Egypt.

JUVENILE INTERMITTENT ALBUMINURIA.

CONSIDERABLE interest attaches to cases of cyclical albuminuria, for their pathology is unknown, and perhaps is different in different cases. The causation of mere intermittency of symptoms generally has not received adequate attention. M. Teissier has collected a fresh series of ten cases of cyclical albuminuria. He lays stress on the following features: A separation of oily matter on the urine, and the presence in it of brilliant bluish or metallic-looking spangles; the absence of true casts, though cylindroids possibly of mucus, and sometimes drops of fat, may be detected with the microscope; the slightness of the subjective symptoms, which may consist of mere vague feelings of malaise, of pain in the back, of weakness, or of pains in the limbs. Neuralgic troubles are rare. There is great nervous excitability or impressionability. Physical examination has never revealed the "bruit de galop." The lowness of arterial tension, which is calculated to be equal to a column of mercury sixteen to seventeen centimetres high, is important as an item in the differential diagnosis of cyclical albuminuria from interstitial nephritis. Dilatation of the stomach was observed in three cases. Three patients had had eczema or urticaria. Neither œdema nor "dead fingers" was noted. Speaking generally, the aspect of the patients is one of good health. The complaint, if such it can be called, is commonly curable; but slight relapses may recur under the influence of fatigue or violent impressions. The age that is most liable to the affection is ten years from puberty onwards; males suffer more than females. Violent exercise and excessive emotional excitement are direct causes. Teissier does not accept the mechanical theory of Bar, nor the theory of disturbance of the glomerular circulation of Magnin. His own view, propounded two years ago at Grenoble, he now believes to be insufficient to explain all the phenomena. A slowing of the combustion of albumens will not explain the presence of fatty matters or the increase of urea in the urine. His present position is to regard the malady as due to over-action of the liver, which is the factory for urea, uric acid, and fatty matters. In treatment the importance of hygiene is very great. These patients are perhaps predestined to become gouty. Shampooing, plenty of fresh air, prohibition of alcohol and white wines, and moderate exercise, are to be prescribed for these young men. Arsenic, inhalations of oxygen, cold baths, bromides and hydrotherapy, tannin, benzoate of soda, &c., are recommended, but especially sweet spirits of nitre, twelve to fifteen drops a day (alcool nitrique); milk eggs, and ham may be eaten, but not fish; thermal waters are good.

THE ERASMUS WILSON BEQUEST.

OUR contemporary, the *Glasgow Herald* of the 16th inst., contains the account of an anti-vivisectionist meeting recently held in Edinburgh. The object of this meeting was "to consider the memorial recently presented to the Royal College of Surgeons praying that the bequest by Sir Erasmus Wilson should be devoted to the foundation of an institution for physiological and pathological research." We have already referred to this petition and to sundry comments by anti-vivisectionists which the petition has called forth. We should prefer to let the matter rest here, were it not that the mover of a resolution stoops to deliberate misrepresentation when he says that "the proposed institution would simply be an institution where from week to week men would follow *no other pursuit than experimenting upon living animals*." (The italics are our own.) Such a statement made concerning members of the medical profession and the managing body of the Royal College of Surgeons is simply a libel. There is not a tittle of evidence in support of such a statement—a statement which betrays profound ignorance of scientific research and the modes in which it is conducted, and exhibits an exaggeration in tone which can only be regretted.

WHAT WAS THE CAUSE OF DEATH?

A CURIOUS case has recently been investigated by the coroner at Cardiff. It appears that a lad named James Dunscombe, aged seven, was taken ill on March 7th, 1887, and died in about twenty hours. His symptoms were chiefly of a convulsive nature, but there was also some vomiting and pain at the stomach. The spasms were of a tonic character. There were marked remissions, but according to the report there were no intermissions. This, taken in conjunction with the fact that deceased lived for the greater part of a day after his first seizure, seems pretty conclusive that the illness was not due to strychnia poisoning. Unless an enormously large dose of strychnia has been taken so as to cause the spasms to follow one another so rapidly as to appear almost continuous, there are well-marked intermissions; and if the dose is large death ensues in a correspondingly short period. Moreover, in this case there was not a tittle of evidence to show that deceased had taken anything which could have contained strychnia; and lastly, an analysis of the contents of the stomach failed to detect the alkaloid. It is said a trace of lead was found in the walls of the stomach; but the analyst evidently thought the quantity too minute to account for the attack of spasms. We do not know whether it was suggested that deceased might have succumbed to saturnine epilepsy from chronic lead poisoning; if so, we should have thought that some mention would have been made of the gums and the muscular coat of the intestine. It could scarcely be contended that the case was one of acute lead poisoning. Were the spasms due to tetanus? They were quite consistent with such a hypothesis, but then no wound of any kind could be discovered. Nevertheless, we are not disposed altogether to discard the theory, for the solution of continuity may be extremely small and hidden away in some recess of a mucous membrane, so that nothing short of a

minute and exhaustive search might succeed in finding it. We are much more inclined to acknowledge tetanus as the explanation of the symptoms than strychnia poisoning. There seems to have been no ground to suspect hydrophobia. It is just possible that the phenomena presented were due to the onset of some specific fever. In one instance we can recall a somewhat similar condition obtained in typhoid fever. To sum up, then, we conclude that the facts as presented fit in better with the theory of tetanus than any other. It is curious that two other children of the same family succumbed to convulsions, one of them dying from hydrophobia. We agree with the opinion of the medical man, who said at the inquest there might be a family tendency to convulsions, in the sense of instability of the reflex centres.

TYPHOID FEVER IN MELBOURNE.

IN an address delivered before the Medical Society of Victoria, Dr. James Jamieson, health officer of Melbourne, drew attention to the comparative prevalence of typhoid fever in that city and suburbs, and the causes of it. He pointed out that whereas in England the fever mortality had greatly and steadily diminished—viz., from 17,910 in 1870 to 7978 in 1883, in Victoria there had been no apparent diminution, even taking into account the increase of population, the average annual mortality of the five years 1871-75 being 360, and that of 1881-85 being 473. He also pointed out that the mortality in Melbourne from fever was much higher than in other parts of the colony; whereas in England the rate in the twenty chief towns is less than in the rural districts. Discussing the various etiological conditions, he dwelt first upon the water-supply of Melbourne, and showed that it could not be charged with the propagation of the disease. Nor was he able to trace during 1886 any cases due to infection of the milk-supply. As to direct contagion, isolated cases occurred, but not sufficient to account for the great and continued prevalence of the disease. He next discussed the influence of the pan system of night-soil collection and removal, which is carried on in Melbourne; and although doubtless accompanied by considerable risk, as well as discomfort, he was unable to adduce positive proof of its being a source of contamination. Lastly, he adduced the imperfection of drainage as the most important of all the conditions to which the prevalence of typhoid fever could be attributed; and gave instances in which this defect in sanitation was responsible for outbreaks of the disease. He quoted the experience of European cities as showing the efficacy of improved drainage in diminishing the mortality from typhoid fever; and contended that what Melbourne needs is a complete system of drainage, which should not merely carry off storm-waters and lessen subsoil dampness, but be utilised for the rapid and complete removal of excrementitious matters. He advocated the formation of a metropolitan board of works empowered to carry out this great and much-needed improvement, in the realisation of which the chief difficulty was one of finance. We are glad to note these opinions of Dr. Jamieson, and trust he will succeed in convincing the inhabitants of Melbourne of the need and importance of the sanitation he advocates.

THE CARRIAGE-TAX.

THE carriage-tax in its present form has few friends in the north of England, especially at Newcastle-on-Tyne, which is in some respects the headquarters of an agitation against its continuance, and, notwithstanding the unfavourable reply of Mr. Goschen to the late deputation, very strong pressure has been put on the northern members of Parliament by the profession there in prospect of the forthcoming budget, with a view to the modification of the tax.

THE APOTHECARIES' HALL OF IRELAND AND THE KING AND QUEEN'S COLLEGE OF PHYSICIANS.

THE King and Queen's College of Physicians in Ireland has published a statement in reply to the request of the General Medical Council that the College should reconsider the Conjoint Scheme for Ireland, with a view to admitting the Apothecaries' Hall, Dublin, to take part therein. In this statement the history of the apothecaries in Ireland is traced minutely, and it is maintained that by law their functions originally had strict reference to the preparing of drugs, inspecting and directing chemical and compound preparations and experiments, and the examination of persons wishing to become apprentices to and learn the business of apothecaries. Contrary to the opinion of Sir Richard Bethell in 1860, it is maintained by the College that there is no analogy between the Hall in Dublin and the Apothecaries' Society in London. Two or three points, however, in the other direction are admitted. It is allowed that the Army, Navy, and Local Government Board recognise the certificates of the Hall, and that there are some practitioners in Ireland holding no other qualification than that of the Apothecaries' Hall, Dublin. In the final result the King and Queen's College say that the Medical Council should decline to appoint assessor examiners to the Apothecaries' Hall, Dublin, and they (the President and Fellows) have no option but to adhere to their resolution to exclude the Hall; and they add that, if an inferior and low grade of practitioners is created and perpetuated, the responsibility will rest with the General Medical Council, and not with the King and Queen's College of Physicians.

INEQUALITY OF THE PUPILS IN HEALTH.

DR. G. T. IVANOFF, referring to some observations by Dr. Pasternatski on the inequality of the pupils in internal diseases (see THE LANCET, Jan. 15th, 1887), communicates to the *Vrach* (No. 7) the notes of a series of observations made by himself in 1885 on a number of healthy subjects, which show that inequality of pupils is a very usual condition when no disease at all is present. Of 134 persons the pupils were equal in 12; the left being the larger in 73, and the right the larger in 49. In these persons the two sides of the face were also carefully measured, with the following results: Of the 12 with equal pupils, the two sides of the face were equal in 3; the right side being the larger in 5, the left in 4. In all the 122 cases where the pupils were unequal the two sides of the face were also unequal; the right being the larger in 27, and the left in 95.

HEALTH OF CALCUTTA.

THE report of the health officer for the fourth quarter of 1886 shows the deaths in Calcutta to have amounted to 3829, which would give an annual ratio of 35·23 per 1000. This is under the average of the preceding decades, in only four years of which has the number of deaths been lower. The returns show a considerable reduction in the deaths by fevers and by dysentery and diarrhœa, but there has been unfortunately a considerable increase in those by cholera, which amounted to 942, as against an average of 383. This disease, which had been prevailing during the third quarter of the year, reached its highest number of deaths in the last week of November, since which date it has continued steadily to decline. Dr. Simpson points out two important facts in connexion with its prevalence in particular localities. "First, a large grouping took place around tanks; and, secondly, most of the cases took place in those localities where there was great scarcity of water"—that is, we presume, water fit for drinking. The water in the tanks of the Bustees was "very foul." He also again calls attention

to the necessity for an amended Municipal Bill, with power to enforce "building regulations which will effectually prevent huts and houses being built irrespective of ventilation, drainage, air space, and means of scavenging." We are glad to learn that the Sanitary Commissioners have sanctioned the formation of the nucleus of a sanitary staff, by which inquiries may be made, under the direction of the health officer, into all cases of cholera, small-pox, typhoid fever, and other preventable disease, with a view to appropriate measures being adopted to arrest their spread.

THE MARQUIS OF SALISBURY.

RUMOUR has much exaggerated the recent illness of the Right Hon. the Marquis of Salisbury. The noble Premier has been suffering simply from the annoyance and feverish depression arising from an attack of what in ordinary parlance would be termed a severe cold in the head. Bronchitis has been mentioned in connexion with his illness. We are, however, able to state that no symptoms of this affection have been present. It is true that Sir William Jenner was in attendance; but merely, we would suggest, to enforce that rest from onerous and responsible duties so necessary, yet so difficult, to be obtained by one in the exalted position of his noble patient.

THE INTERNATIONAL MEDICAL CONGRESS.

THE programme of the proceedings of the Congress will not be completed till after the meeting at Chicago, in June, but it is expected that one of the general addresses will be delivered by Dr. Semmola of Naples, and another by Professor Austin Flint. Communications are expected amongst others from the following gentlemen:—Great Britain: Dr. W. Dunnett Spanton, Dr. Julius Althaus, Dr. W. M. Whitmarsh, Mr. Edmund Owen, Dr. R. Norris Wolfenden, Dr. Sidney H. C. Martin, Mr. Lawson Tait, Mr. Henry Power, Dr. Samuel Benton, Dr. W. Macewen, Dr. G. Feilding Blandford, and Dr. Geo. H. Savage. Ireland: Dr. Thos. More Madden. France: Dr. E. Landolt, Dr. P. Menière, Dr. M. C. Marquis Nadaillac, Professor Dr. A. Charpentier, Dr. J. Ameda-Doleris, Dr. Victor Aud'houi, and Dr. Max Durand Fardel. Germany: Professor Dr. Hegar, Professor Dr. Gusserow, Dr. A. Oldendorff, Dr. L. Lewin, and Dr. J. Veit. Hungary: Professor Joseph Korosi. Austria: Professor Dr. Gustav Braun, Professor Dr. E. H. Kisch, and Dr. Emil Ehrendorfer. Belgium: Dr. Alf. Struebens. Switzerland: Dr. A. Cordes. Canada: Dr. Daniel Clark and Dr. MacCullum. Italy: Dr. Luigi Casiti and Dr. Domenico Perruzzi. We cordially wish the Congress every success.

PARA-MYOCLONUS MULTIPLEX.

DR. HELSINGFORS has described a case of this unfamiliar affection. It occurred in a man aged forty-five, whose father was an inveterate toper. The disease began at the age of sixteen, one year after the patient had had an attack of malarial fever. A convulsive attack, apparently caused by a severe fright, was attended with loss of consciousness. The day afterwards his thighs were the seat of involuntary shocks, often followed by movements in the thighs, later in the arms, and rarely in the face. Ever since that time the shocks had continued, varying a little in frequency and intensity, without, however, disappearing for a long time together, and of late they had increased in frequency and intensity. Movement, emotions, and fatigue increased the movements. Small doses of brandy lessened the shocks, but inebriety might lead to a convulsive seizure and to augmentation of the chronic affection. His general health is said to have continued good all through, and he has never had any pains. Contractions of the facial muscles were observed, especially about the mouth. The chief muscles affected in the arms were the long supinator, biceps, triceps, deltoid, and carpal extensors. The shock extended throughout the whole muscle, and was often followed by a corresponding movement. The muscular contractions were often isolated; sometimes an irregular series of arhythmical contractions were to be observed in the same muscle. The intensity and frequency of repetition of the contractions were rather variable; a common interval was fifteen to twenty seconds. The contractions might be symmetrical without necessarily being isochronous. The movements did not interfere with the manual movements; he could write without trouble. Similar kinds of movements were noted in the muscles of the thigh. Attempts to evoke the ankle clonus were very efficient in calling forth movements in the thigh muscles. The diaphragm, as well as the face, was the seat of the spasms. The case differs from those recorded by Friedreich, Lowenfeld, Remak, and Marie in the last-mentioned facts, and, as in Seeligmuller's case, voluntary movements favoured the occurrence of the involuntary contractions. The knee-jerks were exaggerated in most cases, but diminished in the one now mentioned. The hypothesis of Friedreich supposed the motor cells of the spinal horns to be the seat of a hyper-excitability—a supposition which is so obvious as to be of no pathological value. We want to know why these nervous centres overact.

HALIFAX SUB-TOWNSHIPS AND THEIR MEDICAL OFFICER OF HEALTH.

AN effort is being made to break up the combination around Halifax for which Dr. Britton has hitherto acted as medical officer of health. At a public inquiry conducted by Mr. G. Kennedy and Dr. Frederick Barry, inspectors of the Local Government Board, Dr. Barry opened the proceedings by giving a summary of the advantages of combination over a large number of local appointments of medical men engaged in practice. The relative advantages of the two systems were considered in THE LANCET of Jan. 24th, 1885, and we have since then seen no reason to alter our opinion on the subject. In this special case, even those who advocated a break-up of the existing system had no complaint as to the manner in which Dr. Britton had performed his duties; and his supporters were strongly in favour of continuing the combination. We should much regret any alteration, for the simple reason that we do not believe a change can, in this instance, result in increased efficiency. Unfortunately, the proceedings at the inquiry were of a character not calculated to favour the views of the central authority, and many of those engaged in it came into open conflict with Mr. Kennedy, with the result that language was used on both sides which will not tend to a satisfactory settlement.

NURSING IN WORKHOUSE INFIRMARIES.

MR. SAMUEL BENTON lately read a paper on "Nursing in Workhouse Infirmaries" to the members of the Hospitals Association. It is a subject which requires constant attention. The conclusions he arrived at, and the soundness of which cannot be questioned, were as follows:—

1. The matron should be a lady and a trained nurse. 2. In building these infirmaries more accommodation ought to be provided for the nursing staff. 3. There should always be probationary nurses in training (at all events in the large infirmaries) to fill up vacancies as they occur. 4. The large infirmary and workhouse maternity wards ought to be thrown open for the training of midwives. 5. Every encouragement should be given by the guardians to the medical officers to instruct the nurses and interest them in their work by means of lectures and classes.

THE PRESIDENCY OF THE ROYAL COLLEGE OF PHYSICIANS.

THE day for the annual election of a President by the Fellows of the Royal College of Physicians will shortly come round (Monday, April 4th). If there were any doubt on the last occasion as to who might be chosen to occupy the presidential chair, there can be none now. In the minds of some the habit of not re-electing the President beyond a term of five years had almost come to be regarded as an established rule. But happily that custom was broken through last year, and the precedents of earlier years in the history of the College were followed when by so large a vote the Fellows declared that Sir W. Jenner should form an exception to the rule. Once more they may be trusted to signify their approval of his services to the profession by extending still further his term of office.

MANCHESTER CENTRAL MEDICAL SOCIETY.

THE first annual report of this Society has just been published, and the record of success which it contains seems to prove that such a Society was, as anticipated by its promoters, required by the profession in Manchester and its vicinity. Formerly there was but one medical society in the city, and it was felt that this, for so large a number of professional men, was inadequate; that there must be many valuable experiences lost for want of opportunity to bring them forward; and that there was ample room for a society founded somewhat on the lines of the Clinical Society of London, in which subjects of immediate interest to the medical practitioner might be dealt with, discussions raised on diseases more frequently met with in private practice than in hospitals, and on the use of new drugs. The members number about 120. The library and reading-room have been throughout the year extensively used, and the meetings of the Society well attended. The permanent rooms of the Society are at the Victoria Hotel, Manchester, where many other scientific societies also hold their meetings.

DIPHTHERIA IN YORK TOWN.

THE Sanitary Authority of Frimley are not yet free from anxiety concerning diphtheria in their district. Four more cases of this disease have occurred in York Town, two of which have proved fatal. At a meeting of the board held last week the clerk was instructed to write to the Local Government Board, stating that the authority wanted a report on the recent outbreak, as the district was still threatened with diphtheria. It is, however, no matter for surprise that further cases of diphtheria have occurred in a district in which this disease was freely disseminated a few months ago; the opportunity for its development will likely enough be given by some of the earlier cases. The sanitary authority can hardly expect that the Local Government Board are prepared to issue a report at a short notice on a matter which requires much consideration.

MEDICAL MISSIONARY INSTITUTIONS IN LONDON.

THE March number of *Medical Missions* gives an illustrated paper on the medical missionary dispensaries at present existing in London. The St. Giles's Medical Mission in Endell-street deals annually with some 5000 persons; the Bethnal-green Medical Mission receives upwards of 400 persons in its hospital and treats about 6000 in its dispensary; the Marylebone Medical Mission in Edgware-road relieves about 4000; the Stepney Medical Mission (which is associated with Mr. Barnardo's work) relieves about 2500; the Clapham-road Mission is confined to women and children, and its staff consists of two qualified ladies, who attend about 3000 persons annually; the Mildmay Mission in Cannon-street, Whitechapel, is limited to the Jews, of whom it relieves annually about 5000, or one-tenth of the whole Jewish population of London. These six medical missions, then, relieve some 25,000 persons annually, and thus probably save other hospitals and parochial medical officers a large amount of labour without trenching upon the province of the general practitioner to any appreciable extent, for the patients who are attended either in the Mission dispensaries or at their own homes are almost always miserably poor—often, indeed, in want of the necessaries of life.

THE CLIMATOLOGY OF SPAIN.

IN a paper read before the Academy of Medicine in Madrid on change of climate in the treatment of disease as met with in that city, Dr. Don Iglesias y Díaz, referring to cases of chronic bronchitis with or without tubercle, and various pulmonary affections which, he said, were very intractable in the changeable winter climate of Madrid, mentioned as suitable localities Alicante, Valencia, Murcia, and Cartagena in the east, and Malaga and its surrounding district in the south. While in Madrid the mean annual temperature is about 57° F., and the difference between the maximum and minimum temperatures 95°, the mean temperature in Valencia is 62·6° F., in Alicante 64·4° F., and in Cartagena and Malaga 66·2° F., the variations in all these places being also very much less than in Madrid. The driest localities where there are fewest fogs and least rain are the districts round Cartagena, Alicante, and Elche; then come Murcia, the south of Valencia, and parts of Andalusia; while most of the west and north coasts are damp, and Bilbao and Santiago de Compostella extremely so, the aqueous vapour there having a tension varying from 1000 to 2000 millimetres. For dyspeptics Don Iglesias recommended the southern shore of the Bay of Biscay, where the air is cool and moist.

PROFESSOR POLITZER.

THE old pupils and friends of Professor Adam Politzer have arranged to present him with his portrait as a memento of his great services to aural surgery during the twenty-five years he has been teaching at the University of Vienna. The presentation will take place at the meeting of the Otological Association, in Vienna, at Easter. The subscription (8s.) may be sent to any of the committee: Professor Vittorio Crazzi (Florence), Dr. Antonin Joly (Lyons), Dr. Eugen Morpargo (Trieste), Dr. E. Pius (Vienna), Professor Urban Pritchard (London), Dr. F. Rohrer (Zurich), Dr. A. Rühlman (St. Petersburg).

DIABETIC COMA.

THE latest interpretation of the phenomena of diabetic coma has been to attribute them to poisoning by acids formed within the system, probably from the glucose. It may be remembered that Dr. Ralfe developed this idea at the Pathological Society nearly five years ago, basing his statements upon the similarity in symptoms to those of acute yellow atrophy and poisoning by organic acids, and upon the presence of aceto-acetic acid in the urine. Acetonæmia, then, would be only one link in the chain of processes inducing diabetic coma. But since experimentally neither acetone nor aceto-acetic acid have been found competent to produce phenomena analogous to those of diabetic coma, the way was still open to the discovery of other acid products which should have a toxic effect. This seems to have been supplied by Stadelmann and others in the detection of oxybutyric acid and the determination of greatly decreased alkalinity of the blood. M. Lépine (*Rev. de Méd.*, March, 1887) discusses this ques-

tion and relates a case in which, in accordance with Stadelmann's views, diabetic coma was treated by intravenous injections of alkaline fluid—viz., bicarbonate of soda 34 grms., chloride of sodium 8 grms., water 1½ litre. Intravenous saline injection has, it may be remarked, been practised before in diabetes on other grounds—notably by the late Dr. Hilton Fagge and by Dr. F. Taylor (see Guy's Hospital Reports, 1881), but with no more benefit than in M. Lépine's case. At the same time, the alkaline treatment of diabetes is justified, according to M. Lépine, not so much because of neutralisation of free acid in the blood, since mere neutralisation will not annul the toxic action of the acid, but on the ground that alkaline injections may assist in breaking up the acids and in favouring their elimination. In the case related he found that oxybutyric acid disappeared from the urine after the injections. Prior to the measure, both the blood and urine yielded this acid in parallel amount. Of course, as he remarks, to prevent the accumulation of the poison in the system is not everything; a way may be found some day to prevent its formation.

THE EMPEROR WILLIAM AND HIS PHYSICIAN.

ON the eightieth birthday of the German Emperor, Dr. von Lauer, his Majesty's medical attendant, received the title of "Excellency" and a gift of 150,000 marks. On the 22nd inst., on the occasion of his illustrious patient's ninetieth birthday he is stated to have received 300,000 marks. The post which Dr. von Lauer occupies is far from being a sinecure, and it is pleasing to note that at a period of national rejoicing his skill and care have neither been unnoticed nor unrewarded.

THE LONDON HOSPITAL.

THE main question of the dispute at the London Hospital to which we alluded last week had its origin, we understand, in a difference of opinion between two bodies of the students—that is to say, between those who have entered the full college course of lectures and hospital and those who have entered as full students of the hospital *only*, the former claiming a precedence in the holding of resident appointments, and the latter asserting equal rights in this respect. The matter has now been referred to a college board, who will decide as regards existing rights as expressed in the wording of the prospectus.

EFFUSION OF BLOOD INTO THE KNEE-JOINT.

DR. BONDESEN, writing of the results of treating effusion of blood into the knee-joint with and without puncture of the joint, as shown by the records of the Copenhagen Communal Hospital for the last twenty years, during which 119 cases of the kind have been admitted, states that the percentage of complete cures was eighty-six in the cases punctured, against sixty-three in those not operated on; and, further, that the average stay in hospital of the former class of cases was twenty-two days, against an average stay of thirty-eight days on the part of the others. He considers the best practice is to puncture in all cases, and, if necessary, to lay open the joint, using of course antiseptic precautions.

DEATHS OF EMINENT FOREIGN MEDICAL AND SCIENTIFIC MEN.

THE deaths of the following foreign medical and scientific men are announced:—Dr. Adrian Segura, Professor of Pathology in the Medical School of Mexico, and Director of the Hospital of San Pablo in that city. Dr. Metardier of Bordeaux, author of various works on Hygiene and of Reports on Epidemics, especially on the Cholera in Spain, which he studied carefully on the spot.

THE JAPANESE PHARMACOPŒIA.

THE new Japanese Pharmacopœia has just appeared, and it is hoped that an end will now be put to the inconveniences which have hitherto existed in Japan of there being no official standard for medicines. The chemists obtain their drugs from America, England, France, and Germany, and as the preparations vary considerably in strength, all kinds of confusion arose. The new Pharmacopœia was undertaken some twelve years ago, and in 1880 a commission was appointed by the Government to carry out the work. This commission has held 155 sittings. It was found advisable to write the text of the Pharmacopœia originally in German, that being the language most generally understood by the members of the committee. The official text is, however, Japanese, and there is also a Latin translation. The number of preparations is 475, which are named first in Japanese and then in Latin. The general character of the work is similar to that of the English and German Pharmacopœias.

THE NEW M.D. DEGREE FOR LONDON MEDICAL STUDENTS.

A CROWDED meeting was held at the Westminster Hospital Medical School on Tuesday last, at which Mr. Macnamara occupied the chair. Mr. F. J. Simson proposed, and Mr. A. S. Gubb seconded, a resolution supporting the scheme of the Conjoint Board. The chairman, Dr. De Havilland Hall, and Mr. Black also spoke in favour of the resolution, which was carried with only three dissentients.

THE NAVAL MEDICAL SERVICE.

THE course of instruction at Haslar Hospital for the surgeons who entered the Navy in February last was opened on the 10th inst. by Sir J. Watt Reid, K.C.B., the Director-General of the Medical Department, in the presence of a distinguished company. The proceedings on the occasion will be noticed more fully in our next issue.

CHOLERA PRECAUTIONS.

IN furtherance of the efforts of the Local Government Board to secure adequate preparations against the entrance into this country of cholera by sea routes, an inquiry was held last week at Bangor to consider the proposition to erect a small hospital on Puffin Island, at the entrance to the Menai Straits. Curiously enough, opposition came from such watering-places as Beaumaris, Penmaenmawr, Llanfairfechan, and Llandudno, the places of all others that should seek to assist in proceedings directed against the importation of sea-borne infection.

FOREIGN UNIVERSITY INTELLIGENCE.

Erlangen.—The names selected for the chair of Midwifery with the post of Director of the Lying-in Institution are Dr. Frommel of Munich, Dr. Pawlik of Vienna, and Dr. Sänger of Leipsig.

Kharkoff. — Dr. M. Lomikovski has been appointed Extraordinary Professor of Medical Diagnosis; Dr. Podres, Extraordinary Professor of Surgery; and Dr. P. Iassinsky, Extraordinary Professor of Midwifery and Gynæcology.

Leipsig.—Professor Zweifel of Erlangen has been appointed to the chair of Midwifery and to the post of Director of the Lying-in Institution.

ON the 18th inst. the Carlisle medical officer of health reported to the sanitary authority that an outbreak of typhoid fever had taken place through infected milk. Every precaution has been used to prevent the spread of the infection.

THE Port Said Hospital for Seamen has been erected on the new site near the lighthouse, a medical officer and nurses have been selected, and Lady Strangford goes to Egypt to inaugurate it before May. A sufficient sum to commence working has been guaranteed by the members of the committee, and the Princess of Wales has contributed £500 from a fund under her control.

THE Swedish Government has authorised the appointment of a medical officer to all the higher grade schools for the purpose of watching over the health of the pupils and the hygienic condition of the school. His salary is to be from about £6 to £9, with a capitation fee of about 1*s.* 1*d.* on each pupil.

ON the 23rd inst. the Glasgow University Court appointed out of a number of applicants the following gentlemen:—Botany: George Murray, London. Natural History: R. E. C. Leith, M.A., B.Sc., M.B., Edinburgh. Chemistry: J. J. Dobbie, M.D.Sc., Bangor. Materia Medica: Wm. Whitla, M.D., Belfast.

THE Darlington School Board have ordered their schools to be closed for a time with a view to check the prevalence of measles and scarlet fever in the town.

JOHN TYNDALL, LL.D., F.R.S., has resigned his position as Professor of Natural Philosophy at the Royal Institution, which he has held since 1853.

WE are asked to state that the meeting of the Harveian Society announced to take place on April 7th is unavoidably postponed.

THE next meeting of the Clinical Society will be held on April 1st, instead of the 8th, the latter day being Good Friday.

Pharmacology and Therapeutics.

TINCTURE OF STROPHANTHUS.

FEW drugs have sprung more rapidly into favour than the African arrow poison strophanthus. It was introduced to the notice of the profession by the distinguished pharmacologist, Dr. T. R. Fraser, Professor of Materia Medica in the University of Edinburgh, who for fifteen years laboriously investigated its action both on man and the lower animals. It is now recognised as being not only a powerful heart tonic, but a most active diuretic. It is gradually replacing digitalis in popularity, and will in all probability in time entirely supersede it. It is not cumulative, and is especially indicated in all cases of cardiac affection attended with dropsy. It not only quiets the pulse, but by acting on the kidneys relieves the œdema and other attendant symptoms. It has also been found useful in purely functional irregularity. For a long time a difficulty was experienced in obtaining a thoroughly trustworthy preparation, but Messrs. Burroughs, Wellcome, and Co. have recently made a 1 in 20 alcoholic solution which answers every purpose. This new tincture has been submitted to Prof. Fraser, who, after a careful examination and subjecting it to various tests, found that it answered his requirements. The dose is from two to ten minims, and no hesitation need be felt in pushing it in suitable cases. It is made on a very large scale, some hundredweight or more being manipulated at a time, so that absolute uniformity of product can be guaranteed. The seeds alone are used, the husk and other parts being rejected. We have examined a specimen of the crude drug from which it is prepared, and have no hesitation in saying that it is the true species. The price of the tincture has been recently reduced, so that there is every prospect of its commanding a very extensive trial.

HOGG'S COCAINE TABLETS.

Messrs. R. Hogg and Son, Pharmaceutical Chemists, of 1, Southwick-street, W., have sent us specimens of their cocaine tablets containing one-twelfth of a grain in each. They are active, but are somewhat hard and unpalatable. For the treatment of affections of the mouth or throat, they would, we think, be improved by being prepared with a softer basis.

SALOL IN MEDICAL AND SURGICAL PRACTICE.

Salol has recently been extensively used in the Jewish hospital, Berlin, both in the medical and surgical wards. The *Therapeutische Monatsheft* publishes two papers on the subject from the pens of Drs. S. Rosenberg and L. Feilchenfeld. The former gives an account of the effect of the drug in acute rheumatism. He employed it at first in 15-grain doses six or eight times a day. In almost all the cases this had the effect of bringing down the fever and relieving the pain in the joints in from twenty-four to forty-eight hours. The number of doses was then reduced to from five to two per diem. The continuation of the treatment did not, however, appear to prevent the occurrence of complications, as peri- and endo-carditis and pleurisy; sometimes also singing in the ears, sweats, nausea, and vomiting occurred, and carboluria was always present for a time. The digestive organs were never affected for any prolonged period. Dr. Rosenberg thinks salol acts as a kind of "masked salicyl," being insoluble in the gastric juice, and thus having but little effect on the stomach. It does not, he says, decompose into phenol and salicylic acid until the pancreatic juice acts upon it in the duodenum. Notwithstanding its general advantages over salicylic acid, the latter should be used in very severe cases and when there are repeated relapses. Dr. Feilchenfeld employed salol in various surgical cases, both internally and as an external application. In cystitis and pyelitis he gave two or three 15-grain doses per diem with excellent results, and with little in the way of disagreeable symptoms beyond a green colouration of the urine of no particular moment. Externally salol was found very useful in ulcers of various kinds, and notably in a very obstinate case of bubo consequent upon a soft chancre, which had been operated on and treated with the strongest caustics without showing any disposition to heal. Salol, however, rapidly produced a change for the better, and cicatrisation soon occurred.

MYRTOL.

Myrtol is obtained from the distillation of the leaves of the myrtle; it is a liquid possessing the characteristic perfume of the plant. It is of less density than water, evaporates at the ordinary temperature, stains paper, but the stains disappear entirely. It has a warm, slightly acrid taste, soon followed by a sensation of freshness. It is said to be an excellent disinfectant and an energetic antiseptic, to stimulate the digestive functions, and to increase the appetite. In moderate doses myrtol acts as a sedative to the nervous system. It is eliminated by the respiratory and urinary passages. Myrtol appears to have the advantage over the balsams of not upsetting the stomach, thereby enabling it to be employed for a long time without leading to objectionable effects—e.g., dyspepsia. M. Linaris has had globules of myrtol prepared, each containing fifteen centigrammes of the pure liquid. The remedy does not appear to cause the same effects at all periods of diseases of the respiratory passages. In order to obtain the best results it should be employed with a view to combating subacute or chronic catarrhal affections, or it may be given at the termination of an acute attack of bronchitis when the fever has subsided. Another indication for its employment is an abundant opaque muco-purulent secretion. In these cases the secretion is diminished and rendered less purulent. M. Linaris has employed myrtol in chronic fetid bronchitis, catarrhal bronchitis, catarrhal asthma with paroxysmal attacks and palpitations, capillary bronchitis, and dilated bronchi. The average daily dose was six of the globules; they should be taken after meals: two in the morning, two in the daytime, and two at eventide.

SACCHARINE IN DIABETES.

Dr. Arnold Pollatschek of Carlsbad writes in a Hungarian journal on the importance of Fahlberg's saccharine or anhydro-ortho-sulphamide-benzoic acid, as Stutzer calls it. Dr. Pollatschek quite agrees with Stutzer, Aducco and Mosso of Turin, and Salkowski of Berlin—all of whose researches on the chemical, physiological, and therapeutical aspects of the

subject he quotes at some length—that saccharine is perfectly harmless. He finds that it may be given to diabetics for sweetening purposes, neutralised as proposed by Prof. Leyden with carbonate of soda. Dr. Pollatschek made an attempt to cover the bitter taste of quinine with saccharine, but did not succeed.

ROYAL COLLEGE OF PHYSICIANS.

AN extraordinary Comitia of the College was held on the 21st inst., Sir W. Jenner, Bart., President, in the chair.

A letter was read from the secretary to H.R.H. the Prince of Wales, conveying his Royal Highness's thanks to the College for the gift of a copy of Harvey's Prælectiones Anatomicæ.

A letter was read from the President of the General Medical Council addressed to the President of the College, containing the following resolution passed on Feb. 19th: "That the Council, being of opinion that it would be contrary to the interest of the public to have two competing examining boards sitting in London, and that it is desirable that the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Apothecaries' Society of London should arrange to hold a qualifying examination conjointly, strongly recommend to these medical authorities to reconsider their position with a view to such an arrangement; and meantime defer coming to a decision on the application from the Apothecaries' Society of London of Feb. 12th." The letter went on to say that the Council felt it their duty to leave no way untried to effect combinations between licensing bodies, which had been done in Scotland, and partially in England and Ireland. By the combination proposed one strong licensing body would be formed in London.

The President pointed out that it was inaccurate to say that the Colleges in any way competed with the Apothecaries' Society.

It was moved by Dr. Dickinson, seconded by Dr. Habershon: "That this College, having already in full comitia in October deliberately considered the advisability of admitting the Apothecaries' Society of London to take part in the formation of an examining board for England, in consequence of a communication received from that Society, and having voted *nemine contradicente* against the inclusion of that body, having again fully considered the question, sees no reason for altering the decision previously arrived at by this College." In the discussion that ensued several Fellows took part, including Sir Dyce Duckworth, Sir Henry Acland, Dr. Handfield Jones, Dr. Wilks, and Dr. N. Moore. Sir H. Acland reviewed the previous steps taken to secure combination of bodies, and claimed that the attitude assumed by the Medical Council upon the question was in strict accordance with the spirit of the Medical Act, which was framed to ensure combinations of licensing bodies. The President strongly supported the motion, which was carried without a dissentient vote. A proposal by Dr. Wilson Fox that a statement of the reasons actuating the College should be appended to the resolution was withdrawn, it being felt that these reasons could be left in the hands of Sir Dyce Duckworth, the representative of the College on the General Medical Council.

Several communications regarding the movement of the two Colleges to obtain powers to grant degrees were read. One was from the secretaries of University College and King's College, to the effect that these Colleges intend to apply for a charter to grant degrees, and requesting a conference with the two Royal Colleges. Another was from the King and Queen's College of Physicians in Ireland, asking what steps the Royal Colleges were taking to obtain this power, and intimating their intention to make a similar application. A third from the Royal College of Surgeons of Ireland was to the same effect. A memorial from the Faculty of Medicine of University College, Bristol, asking that admission to the proposed degree should be extended to students in provincial schools, was referred, with the other communications, to the Committee of Delegates. A communication was read from the Association of General Practitioners enclosing resolutions passed at a recent meeting in Exeter Hall, dealing with the degree question, the conjunction with the Apothecaries' Society, and with the representation of Licentiates and Members on the governing body of the College.

A letter was read from the secretary to the Imperial Institute, inviting contributions from the Fellows of the College. It was resolved, on the motion of the President, to present a memorial to Her Majesty on the occasion of her jubilee; and it was also resolved to erect a statue or bust of Her Majesty, in commemoration of that event, in the new Examination Hall.

A report from the Committee of Management suggesting certain alterations in the examination regulations was adopted.

THE NAVY ESTIMATES.

THE Navy estimates continue to be furnished in a form which, so far at least as regards the medical service, makes it difficult, if not impossible, to give a clear statement of the expense involved. From the scattered details we gather that the *personnel* of the department is estimated to be 1 Director-General, 2 Inspectors-General of Fleets and Hospitals, 10 Deputy Inspectors-General, 65 Fleet Surgeons, 76 Staff Surgeons, and 217 Surgeons. The amount required for their pay and allowances is £136,573. There are on the half-pay list, but eligible for employment, 21 officers, for whom £3759 are taken. On the retired list there are 22 Inspectors-General, 70 Deputy Inspectors-General, 58 Fleet Surgeons, 62 Staff Surgeons, and 38 Surgeons, making a total of 250, whose retired pay amounts to £86,385. Provision is made for 3 head sisters and 15 nursing sisters in the Melville, Haslar, and Plymouth Hospitals, at an expense of £1367 for their pay and £235 for their uniform clothing. It is impossible to say what amount is required for the purchase of medicines and instruments, as under the vote in which these appear a great number of things are included which, though intended for the use of the sick, cannot be classed under either of these heads. We observe that, while the vote for the expense of carrying out the Contagious Diseases Acts disappears from the estimate, a sum of £2100 is to be taken "for contributions in aid of lock wards at Portsmouth and Devonport." For the purpose of carrying out sanitary work a sum of £2000 is to be expended on "sanitary alterations" in the Royal Naval College, Portsmouth; £800 for lavatories &c. to one block of wards in Chatham Hospital, and £620 for heating arrangements for washing-troughs in Plymouth Hospital. The only items under this head for foreign stations are a sum of £520 for "improvements to fever ward" in the hospital at Jamaica, and contributions of £1250 towards the drainage works at Halifax, and of £430 towards those at Malta.

THE IRISH MEDICAL SCHOOLS AND GRADUATES' ASSOCIATION.

THE annual general meeting of this Association took place on St. Patrick's Day, Thursday, March 17th, at 49, Berners-street, London. The following members of Council were present:—Sir Thos. Crawford, K.C.B., Director-General of the Army Medical Department; Dr. Macnaughton Jones; Prof. Yeo, chairman of Council; Prof. Macalister; Dr. Edward Waters, Chester; Dr. Gilbart Smith; Dr. Wm. H. White; Dr. Phillips, Reading; Dr. R. Fegan; Dr. J. H. Gibson; Brigade Surgeon Alexander, hon. treasurer; Dr. Jas. Stewart, hon. sec. for the Provinces; and Dr. P. S. Abraham, hon. sec. for London. Among the other members who attended were Inspector-General Dick, R.N.; Dr. Henry Fitzgibbon, Dublin; and several others. After the outgoing president (Dr. Macnaughton Jones) had relinquished the chair to Sir Thos. Crawford, now president, the annual report of the Council was read. The number of members on the roll had increased within the year from 358 to 459. The Council had to regret the loss by death of six—viz., Drs. Thompson (founder of the Association), Curtin, Eames, Staff Surgeon O'Sullivan, R.N., Dr. Sexton, and Deputy Surgeon-General Wolesley. Among the more important matters which had been and were still under the consideration of the Council, were the disabilities under which graduates laboured who held the higher qualifications of the Dublin Colleges. The hon. treasurer's report was very satisfactory, and showed a substantial balance to the credit of the Association. Professor

Alexander Macalister, M.D. (Trin. Coll., Dublin), F.R.S., was then nominated as president-elect. Cordial votes of thanks were accorded to Dr. Macnaughton Jones, who had so ably and zealously occupied the chair for two years, and to Dr. Daniell on his resigning the post of hon. metropolitan secretary, which he had filled since the foundation of the Association. In the evening the members dined together at the Holborn Restaurant.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Sutton-Coldfield Urban District.—Dr. Bostock Hill was appointed in May last to act as health officer for this newly incorporated borough. His report deals at length with the statistical returns, which show a birth-rate of 23·06 and a death-rate not exceeding 12·6 per 1000, the zymotic rate also being low—namely, 1·04. Indeed, in a population of 8630 no death occurred from typhoid fever, only 1 from diphtheria, and 2 from diarrhœa. The isolation hospital is maintained in a state of readiness, and by its aid much may be done towards a continuance of freedom from preventable diseases. Sewer extensions are much needed, and we note that some commencement of this work is in hand. At present there are no bye-laws, and in deciding as to their adoption the authority would do well to examine the annotated edition of the model code issued by Messrs. Knight and Co. The question of offensive trades, dairies, cowsheds, and milkshops, bakehouses, and overcrowding are either being dealt with or under immediate consideration. The prevailing meteorological conditions are discussed in the report in connexion with the health of the district.

Blackpool Urban District.—We have elsewhere referred to that portion of Dr. Welch's report which deals with the question of the isolation of infectious fevers. We here note the report generally. During 1886 the general death-rate on nearly 20,000 people was 18·9 per 1000, but deduction being made for forty-six deaths in visitors, the rate is reduced to 16·5. Infant death under one year has, during seven years, decreased from an average of 16·3 to 15·1 per cent. of registered births; but even the latter rate is needlessly high, especially for such a place as Blackpool. In connexion with the association of faulty sanitary circumstances with this death-rate, Dr. Welch explains that in one street five deaths from infantile diarrhœa have occurred during the last few years. They all took place on one side of the street, and the only difference which was noticeable as regards the houses, which were otherwise alike on both sides, was the fact that on the diarrhœa side of the street the back windows overlooked old-fashioned open ashpits, whereas on the other they faced a blank wall. That such structures, together with common privies elsewhere reported, should exist in a town taking its place as a health-giving resort constitutes a reproach which calls for removal. The town water service, otherwise wholesome, needs efficient filtration, and the systematic flushing of the mains is also periodically required. The need for improvement as to open space at the back of houses is likewise maintained. In Blackpool, it is evident that even the small minimum space required under the bye-laws is not always enforced. Should this continue, that undue aggregation of houses on area which has ruined the sanitary reputation of many a town will gradually assert itself. Dr. Page, of the Local Government Board, has recently visited Blackpool, and he has urged on the authority the need for substantial improvement in several respects, to which Dr. Welch also refers.

Shipley Urban District.—In this district the birth- and death-rates for 1886 were 24·8 and 13·3 per 1000 respectively, and whereas the average number of deaths from the seven principal zymotic diseases for the years 1879-85 was 23, the total was only 3 last year. Notification of infectious diseases is pretty general in the district, but, as Mr. Ellis points out, it comes so often at the wrong time. People notify so as to secure the aid of the sanitary officers for the purposes of disinfection at the close of an illness, whereas the primary object of notification requires that the information shall be supplied at the earliest possible date in the history of the case. Isolation was in certain cases of scarlet fever carried out by removal of the sick to the apartments provided for the authority, on a payment of 3s. a day, at the Sir Titus Salt Hospital. Mr. Ellis secures the personal attendance of his authority during an inspection of his district; this is a plan admirably calculated to ensure abatement of conditions injurious to health, and it is evident from the steady reduction in the rate of mortality which has been in progress ever since 1875, and this notwithstanding a growing population, that the sanitary interests of Shipley are held to be of importance. The saving of life on 17,000 people which must have followed a reduction from 23·5 per 1000 in 1875 to 13·3 per 1000 in 1886 is very great, and with it has gone a saving of much misery and unhappiness.

Torquay Urban District.—This district is about to be materially improved, since, under the Torquay Harbour and District Act, the harbour, with its still piece of water, is now in the hands of the sanitary authority, and can be kept free from the nuisance which follows on the accumulation of seaweed and of dead fish left by wasteful fishermen. The compulsory notification of infectious diseases has also been secured for the town, together with other sanitary powers, such as relate to obtaining from dairymen lists of their customers, and to the inspection of dairies outside the district. With but few exceptions, Mr. Karkeek has a satisfactory record to give for the year. In one instance grossly defective conditions of house-drains in a dwelling led to fatal typhoid fever almost immediately on the house being entered. Those who had formerly lived there appear to have become habituated to the evils; but, as often happens, a new-comer not accustomed to inhale drain air was smitten down at once. Nothing short of a house-to-house inspection, which lies at the root of efficient sanitary work, or, failing that, the registration of all sublet houses and their control by bye-laws, can deal with such cases. The death-rate on 25,000 was 16·48 per 1000, or, if visitors are excluded, 14·76 per 1000.

Holsworthy Rural District.—Mr. Linnington Ash gives the birth-rate and death-rate for this district as 30·8 and 17·5 per 1000 respectively; the zymotic rate being 1·7. About the end of the second quarter diphtheria made its appearance, and, in spite of every effort to induce parents to apprehend the danger and to take the proper precautions, the disease spread through the medium of school attendance. Although the school was closed, it caused four deaths, and also continued into the fourth quarter of the year. Measles and whooping-cough were also present during the year, and it is shown that the district finds itself hampered in dealing with infectious diseases by reason of the absence of any proper means for the isolation of first cases. In Holsworthy town the need for a proper water-supply is most pressing. For three months last year there was practically a water famine, and though the matter has been under notice again and again, it remains as yet quite undealt with. Indeed, no work for securing permanent sanitary improvements has been carried out during the past year, although in several respects they are much needed.

Exeter Urban District.—The Exeter Sanatorium contained 97 patients during 1886, scarlet fever affording 61, typhoid fever 18, and small-pox 14 cases. The death-rate was only 4·7 per cent. of admissions. As regards small-pox, it is stated that that which appeared at one time to threaten a severe epidemic was brought to an end by means of the isolation afforded. It further appears that although 230 cases of scarlet fever have been under treatment there between November 1st, 1877, and December 31st last, there has been no death from this disease since November, 1877.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In twenty-eight of the largest English towns 5516 births and 3977 deaths were registered during the week ending March 19th. The annual death-rate in these towns, which had been equal to 21·3 and 21·6 per 1000 in the preceding two weeks, further rose last week to 22·4. During the first eleven weeks of the current quarter the death-rate in these towns averaged 21·9 per 1000, and was 2·1 below the mean rate in the corresponding periods of the ten years 1877-86. The lowest rates in these towns last week were 13·9 in Birkenhead, 16·5 in Halifax, 17·2 in Brighton, and 17·8 in Ports-

mouth. The rates in the other towns ranged upwards to 28·6 in Newcastle-on-Tyne, 29·6 in Oldham, 33·1 in Bristol, and 33·2 in Manchester. The deaths referred to the principal zymotic diseases in the twenty-eight towns, which had increased in the preceding five weeks from 340 to 412, further rose last week to 462; they included 213 from measles, 112 from whooping-cough, 45 from scarlet fever, 35 from diarrhœa, 32 from "fever" (principally enteric), 24 from diphtheria, and only 1 from small-pox. No death from any of these principal zymotic diseases was registered last week in Brighton or in Birkenhead; they caused, however, the highest death-rates in Bristol, Huddersfield, Oldham, and Sunderland. The greatest mortality from measles occurred in Leicester, Norwich, Bristol, Salford, Manchester, and Huddersfield; from whooping-cough in Bristol, Huddersfield, and Oldham; and from scarlet fever in Bristol. The 24 deaths from diphtheria in the twenty-eight towns included 13 in London, 2 in Portsmouth, 3 in Liverpool, and 3 in Oldham. Small-pox caused one death in Sunderland, but not one in London, and its outer ring, or in any of the twenty-six other large provincial towns. Only 3 cases of small-pox were under treatment on Saturday last in the metropolitan hospitals receiving cases of this disease. The deaths referred to diseases of the respiratory organs in London, which had been 466, 459, and 433 in the preceding three weeks, rose last week to 474, but were 67 below the corrected average. The causes of 119, or 3 per cent., of the deaths in the twenty-eight towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Derby, and Birkenhead. The largest proportions of uncertified deaths were registered in Halifax, Hull, Salford, Oldham, and Sunderland.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 23·6 and 25·0 per 1000 in the preceding two weeks, further rose to 26·2 in the week ending March 19th; this rate exceeded by 3·8 the mean rate during the same period in the twenty-eight large English towns. The rates in the Scotch towns last week ranged from 15·8 in Dundee and 19·5 in Edinburgh, to 30·2 in Glasgow and 41·7 in Aberdeen. The 655 deaths in the eight towns last week showed a further increase of 30 upon the numbers in the preceding two weeks, and included 50 which were referred to measles, 28 to whooping-cough, 11 to diarrhœa, 9 to scarlet fever, 8 to "fever" (typhus, enteric, or simple), 6 to diphtheria, and one to small-pox; in all, 113 deaths resulted from these principal zymotic diseases, against 98 and 101 in the previous two weeks. These 113 deaths were equal to an annual rate of 4·5 per 1000, which exceeded by 1·9 the mean rate from the same diseases in the twenty-eight English towns. The fatal cases of measles, which had been 27 and 43 in the preceding two weeks, further rose last week to 50, of which 35 occurred in Aberdeen and 14 in Glasgow. The 28 deaths from whooping-cough exceeded the number in the previous week by 3; 19 occurred in Glasgow and 4 in Aberdeen. The 9 fatal cases of scarlet fever, on the other hand, showed a further decline from recent weekly numbers; 6 were returned in Glasgow and 2 in Edinburgh. The 11 deaths attributed to diarrhœa corresponded with the number in each of the previous two weeks, and included 4 in Glasgow, 2 in Greenock, and 2 in Paisley. The 8 deaths referred to "fever" exceeded the number in any recent week; 4 occurred in Glasgow and 2 in Aberdeen. Of the 6 deaths from diphtheria, 3 were returned in Glasgow and 2 in Leith. The death classed to small-pox was said to be a fatal case of chicken-pox in Glasgow. The deaths referred to acute diseases of the respiratory organs in the eight towns, which had been 142 and 135 in the preceding two weeks, rose last week to 152, but were 52 below the number returned in the corresponding week of last year. The causes of 69, or more than 10 per cent., of the deaths registered in the eight towns during the week were not certified.

HEALTH OF DUBLIN.

The rate of mortality in Dublin, which had been 28·1 and 31·3 per 1000 in the preceding two weeks, declined again to 29·3 in the week ending March 19th. During the first eleven weeks of the current quarter the death-rate in the city averaged 30·9 per 1000, the mean rate during the same period being but 20·7 in London and 21·3 in Edinburgh. The 198 deaths in Dublin last week showed a decline of 14 from the number in the previous week; they included 4 which were referred to "fever" (typhus, enteric, or simple), 2 to scarlet fever, 1 to diarrhœa, and not one either to small-pox, measles, diphtheria, or whooping-cough. Thus the deaths from these principal zymotic diseases, which had been 15 and 10 in the preceding two weeks, further declined last week to 7; they were equal to an annual rate of 1 per 1000, the rates from the same diseases being 2·2 in London and 1 in Edinburgh. The deaths from "fever," which had been 8, 5, and 5 in the previous three weeks, further declined last week to 4. The fatal cases of scarlet fever were 2, against 7 and 1 in the previous two weeks. The deaths of infants showed a marked decline from the numbers in recent weeks, and those of elderly persons were fewer than those in the previous week. Five inquest cases and 6 deaths from violence were registered; and 57, or nearly a third, of the deaths occurred in public institutions. The causes of 36, or more than 18 per cent., of the deaths registered during the week were not certified.

MORTALITY IN LARGE LANCASHIRE TOWNS IN 1886.

The twenty-eight large towns dealt with by the Registrar-General in his weekly return include seven Lancashire towns, which had in the middle of last year an aggregate population of more than a million and a half. Liverpool headed the list with a population of 586,320; while the smallest town was Preston, which had an estimated population of 101,340. The mean death-rate in these seven Lancashire towns during last year was equal to 24·4 per 1000, against 20·0, the mean rate in the whole of the twenty-one other large towns in the list, and against 19·9 in London. Thus in equal numbers living the mortality in the Lancashire towns last year was 120 to 100 in the other large towns, showing an excess of a fifth, or of 20 per cent. Striking as is the excess of the recent mortality in these Lancashire towns measured in this manner, the true excess, if due account be taken of the sex and age constitution of the population of these towns, is still greater. Duly corrected for this disturbing element, on the assumption that the sex and age distribution of the population of each of the towns is the same as that of England and Wales, the death-rates in these seven Lancashire towns last year were 24·0 in Salford, 25·3 in Oldham, 25·4 in Bolton, 26·1 in Liverpool, 27·8 in Blackburn, 29·4 in Manchester, and 31·4 in Preston. The rates in the twenty-one other large towns, corrected in a similar manner for sex and age inequalities, ranged from 17·6 in Brighton and 18·9 in Derby, to 24·5 in Portsmouth and Cardiff and 24·7 in Halifax. The rates, therefore, in six of the Lancashire towns exceeded those recorded in any of the other towns; while the rate in Salford (the lowest in any of these large Lancashire towns) was only exceeded in Portsmouth, Cardiff, and Halifax. The rates in the six Yorkshire towns stand out in favourable contrast with those of the seven Lancashire towns above referred to. It should be stated that recent death-rates in the Lancashire towns bear favourable comparison with the rates in past years, but they do not show a reduction at all commensurate with that which has been so marked in the death-rates of English urban populations generally. That the excess of mortality in the Lancashire towns is the result of defective sanitary condition may undoubtedly be inferred from the fact that the excess is as strongly marked in the rate from the principal zymotic diseases and in the rate of infant mortality as it is in the general rate from all causes. It may be noted, for instance, that the mean rate from "fever" (principally enteric) in the seven Lancashire towns was nearly twice as high as the mean rate in the twenty-one other large towns, while the death-rate from scarlet fever was more than twice as high. Few will now deny that, at any rate, the mortality both of enteric and of scarlet fever is clearly within the control which it is possible for good sanitary organisation to command.

MORTALITY IN AUSTRIAN CITIES.

From a return just issued in Vienna, it appears that Austria contains forty-nine towns, each of which in the middle of last year contained an estimated population exceeding 12,000 persons. Vienna heads the list with a population of 780,066, and four other cities have populations exceeding 100,000: Prague with 182,935, Trieste 155,197, Lemberg 117,902, and Graz 103,670. There are five towns with popu-

lations varying between 50,000 and 100,000; while the population of the remaining thirty-nine towns range between 12,000 and 50,000. According to this return, the death-rate per 1000 of the population during last year was 28·5 in Vienna, 39·0 in Prague, 39·8 in Trieste, 34·4 in Lemberg, and 30·4 in Graz. In the smaller towns still higher rates prevailed, and it is noteworthy that in only four of the forty-nine towns was the death-rate in 1886 below 25 per 1000; in thirteen it was between 25 and 30; in eighteen between 30 and 35; in eleven between 35 and 40; and in three towns the rate exceeded 40 per 1000. These strikingly high rates of mortality in the Austrian cities present a remarkable contrast with the rates that prevailed last year in English towns. In the twenty-eight large towns of England and Wales, with an average population many times greater than the average population of the Austrian towns, the death-rate last year ranged from 17·1 in Brighton and 18·2 in Derby, to 26·3 in Manchester and 28·9 in Preston. The range of mortality in the Austrian cities above referred to was between 21·4 and 48·1. This marked excess was in great measure due to the mortality of zymotic diseases, to which further reference will shortly be made.

THE SERVICES.

Deputy Surgeon-General Sir J. A. Hanbury, K.C.B., the Principal Medical Officer of the Home District, has been ordered to hold himself in readiness to proceed to the Mediterranean, for the purpose, we presume, of taking up the appointment of Principal Medical Officer at Gibraltar in succession to Surgeon-General Fraser, who will be placed on the retired list under the provisions of the age-clause of the Warrant. *The Times* correspondent at Rangoon states that the commissariat and medical arrangements for the police in Upper Burmah have been very defective, and that Mr. Crosthwaite has selected Surgeon-General Farrell, of the Indian Medical Service, to take charge of the medical arrangements.

WAR OFFICE.—Army Medical Staff: Surgeon-Major Francis Henry Welch to be Brigade Surgeon, vice John Henry Hunt, deceased. Dated Feb. 24th, 1887.

ADMIRALTY.—The following appointments have been made: Surgeon G. H. Meaden, to the *Seaflower;* Surgeon E. A. Spiller, to the *Martin;* Surgeon G. E. Kennedy, to the *Nautilus;* Surgeon J. E. Webb, to the *Pilot;* Surgeon J. F. Bate, to the *Sealark;* Surgeon J. Andrews, to the *Liberty* (all to date from the 25th inst.); and Surgeon R. Hickson, to the *Lion.*

Correspondence.

"Audi alteram partem."

TREATMENT OF PLACENTA PRÆVIA.

To the Editors of THE LANCET.

SIRS,—I have only just read your complimentary remarks of March 5th on my recommendations in treating placenta prævia, and the letter of Dr. Jas. Murphy on your approval of them. There is one remark of yours I should like permission to correct, when you say, "though some facts in the pathology of placenta prævia (such as the arrest of hæmorrhage after turning and before extraction) were unknown to him and his contemporaries." On page 27 of my "Combined External and Internal Version" (1864) I say: "I believe that in nearly every case the bleeding will be found to be controlled by the drawing down the child after version so as to fill up the os uteri. I have never found any bleeding after this point has been gained." Again, page 28: "Should there be reason to fear hæmorrhage was going on internally, then the delivery might be hastened; but I have in all the cases narrowly watched for any externally or internally without having met with it. Such a state is of course possible, but I think it must be rare," &c.

With regard to Dr. Murphy's letter, I may say that it affords me great pleasure to be in happy rivalry with plans that have reduced the former mortalities to so low a point. For my own part, I do not wish anything I have suggested to take a position other than it deserves; the saving of life is too earnest a thing to stand behind personal interest. I may, however, be permitted to point out that the treatment of cases of placenta prævia clinically may be divided into two classes: one where we are suddenly called without previous acquaintance with the case, without any means at command but our hands; the other where, having seen the patient beforehand, we can calmly set our plans to bear on the treatment. In the former, particularly, the plan I have suggested gives us the command of the position such as none other can give. In those cases where we have time the importance of terminating the pregnancy cannot be overrated; it is that which I have for years inculcated in my lectures, and I have no doubt others have in theirs; but in this I make no claim to originality, for it is to Dr. Greenhalgh we are indebted for the first definite laying down of what Dr. Murphy in his letter wishes to enunciate as a ninth great proposition. In 1864, in a paper read before the Obstetrical Society of London, Dr. Greenhalgh said that "in any given case of hæmorrhage due to placenta prævia occurring after seven and a half months of utero-gestation, when the child is viable, it is expedient, both for the safety of the mother and child, to expedite labour—unless the condition of the exhaustion be such as to preclude this step; and if so, then as soon as possible after she has recovered from the shock." This is virtually the same as Dr. Murphy enunciates as his ninth proposition. In the discussion on that paper my plan of turning is compared with that of the older internal mode, to the great advantage of the "combined." In that discussion I said that I "quite agreed with Dr. Greenhalgh as to the necessity of inducing labour in placenta prævia as soon as arrangements could be made, which I believed to be the plan adopted by all who saw much midwifery in that city; it was the practice I had always adopted" (*op. cit.*), and in my paper read in 1863 at the Obstetrical Society, and in the little work "Combined External and Internal Turning," of the same year as Dr. Greenhalgh's paper, I allude to the advantage also given us in dilating the os with Barnes' bags and separating the placenta around the os. "The value of these bags is very great, and they give us the power of operating at a date far earlier than we ever possessed before." But the separation of the placenta by the finger in placenta prævia is not always without severe loss. I have had several cases where on peeling off the placenta the hæmorrhage was so violent that had I not been able to use the bipolar method serious results would almost certainly have occurred. Doubtless, the mortality from placenta prævia has been latterly much lessened by the rule laid down by Dr. Greenhalgh of early termination of the pregnancy, by those who have followed it; but it still needs to be more generally known and practised, and Dr. Murphy's emphatic endorsement will assuredly do much good.

I am, Sirs, yours truly,

George-st., Hanover-sq., March 21st, 1887. J. BRAXTON HICKS.

THE ROYAL UNIVERSITY AND UNION HOSPITALS.

To the Editors of THE LANCET.

SIRS,—I have received a communication from the Privy Council in which marked prominence is given to the fact that the utilisation of union hospitals is still under the consideration of the General Council. One member of that body fell into the strange error of stating that these hospitals lacked material for teaching. The Irish Local Government Report for 1886 will show that 52,000 were admitted in 1885 in sickness from the outside. These were all cases that were of course too sick to be treated in the dispensaries. They were admitted under an Act which opened up these hospitals to the general public, and of whose existence our critics seem to be unaware. That report will further show by its table of the causes of deaths that at least 24,000 sick paupers were likewise entitled to be placed among the *bonâ-fide* clinical material. The further pretence of the Royal University that they could not exercise proper supervision over such hospitals is met by their own action in recognising other hospitals over which they could not exercise it, and in their not exercising it where they could do so. The time is not far distant when self-respecting provincials will be able to defend their own interests.

I am, Sirs, yours truly,

Cashel, March 15th, 1887. THOMAS LAFFAN.

INEQUALITY OF THE PUPILS IN TUBERCULAR MENINGITIS.

To the Editors of THE LANCET.

SIRS,—My friend Mr. Buxton has rather mistaken the origin and object of my letter on "Inequality of the Pupils in Various Diseases." It was written because I noticed that Dr. Pasternatski, in writing on this subject, and enumerating several diseases where this symptom existed, did not mention tubercular meningitis. Now, as my experience is that it is often present where tubercle of the cerebral membranes exists, I was desirous of knowing if this was an accidental omission, or that Dr. Pasternatski had not observed the symptom in tubercular meningitis. It did seem to me more than a coincidence that my fatal cases had unequal pupils to a very marked degree (I have copious notes of a very interesting case in a boy of nine, where one pupil was widely dilated and the other contracted to a pin's point, both insensible), while in the cases of recovery it did not exist; and it still appears to me reasonable that the pressure on the brain, whether caused directly by tubercle or by fluid the result of tubercle, should produce graver symptoms when that pressure is all on one side, and not shared between the two cerebral hemispheres; and thus unequal pupils may become an important and valuable symptom affecting the prognosis, although of course not necessarily excluding the diagnosis; and Mr. Buxton has not shown that there is not a tendency—and I think there is—for the fluid to gravitate more or less on one side in this disease. I did not examine the fundi; the pupils in every fatal case were insensible.

I am, Sirs, yours truly,

March 22nd, 1887. FREDK. H. ALDERSON, M.D.

ERYSIPELAS AFTER VACCINATION.

To the Editors of THE LANCET.

SIRS,—The article on the above subject in your last issue induces me to draw attention to a factor of importance in the causation of erysipelas—i.e., hereditary predisposition. This was brought forcibly under my notice a few years ago, while holding the post of public vaccinator to a district in Yorkshire. I had a severe case of spreading erysipelas following vaccination in a child nine months old, who eventually recovered after a long illness. There was nothing either in the history of the inserted lymph, or, as far as I could judge, after careful inspection and inquiry, in the sanitary surroundings of the patient, to account for the disease, but there was a decided family history of erysipelas, both parents having suffered from it, the father being peculiarly prone to attacks of the facial variety. All other explanations failing, I attributed the occurrence to the depressing influences of teething and an inherited predisposition to the development of erysipelas, the vaccination wounds merely affording an inlet to the active elements of the disease, which under different circumstances might have been innocuous. The case made a lasting impression on my mind, and is certainly suggestive in view of similar occurrences.

I am, Sirs, yours faithfully,

JAMES TURTON, M.R.C.S.,
Late Public Vaccinator, Dewsbury Union.

Brighton, March 20th, 1887.

"A CASE FOR INQUIRY": A DISCLAIMER.

To the Editors of THE LANCET.

SIRS,—THE LANCET of the 12th ult. has only just come into my hands, and I am very much astonished to find in your annotations a paragraph which, unless the matter is cleared up, may be considered to refer to me. I find on looking at the Medical Directory for 1884 that I am the only T. Young in the whole of the United Kingdom possessing the qualifications mentioned. I have been unable as yet to procure copies of the *Illustrated London News* for the dates to which your paragraph refers; but whatever the matter may be, I most emphatically disavow any knowledge of it, inasmuch as I neither know nor have ever had any communication with Mr. Alabone. I assure you that both advertising and assumption of titles which are not legal have as little of my sympathy as of yours. I feel sure that, with your usual justice and impartiality, you will allow me in your next issue to disclaim any connexion between the "Dr. T. Young" mentioned in your issue of the 12th ult. and myself.

I am, Sirs, yours faithfully,

THOMAS BRETT YOUNG, L.R.C.P., L.R.C.S. Edin.

The Laurels, Hales Owen, near Birmingham, March 22nd, 1887.

*** We gladly insert our correspondent's letter.—ED. L.

MANCHESTER.

(*From our own Correspondent.*)

HOSPITALS AND PROVIDENT DISPENSARIES.

IN THE LANCET of the 19th inst. is an article on Co-operation of Hospitals and Provident Dispensaries, pointing out the importance of this subject on the work of the committee which is now considering how best in London to organise medical attendance on the poor and prevent indiscriminate giving of free medical relief. The committee might gain some valuable information by applying to the proper quarter here. For many years the provident dispensary has worked with the Royal Infirmary and other medical charities, with the object of preventing abuse of the latter. Inquiries are made into the circumstances of all patients applying for aid, and after having given what assistance or help may be needed at the first time of coming to hospital, they are referred to the provident dispensaries, if their means are found to be such as to enable them to pay the scale of charges fixed by them. By this means the out-patient departments especially are kept from being overcrowded, and those who are proper objects for the work of the charities receive more attention than if the numbers were swelled to an almost unmanageable extent.

ST. MARY'S HOSPITAL.

At the late annual meeting of St. Mary's Hospital the balance-sheet showed an unsatisfactory condition, the expenditure in the past year having exceeded the income by £348. A most important matter was decisively announced—i.e., the attempt to raise a fund for building a new hospital. Already subscriptions to the amount of £10,000 have been promised, and important help has been promised by Madame Marie Roze, who will give a concert in aid of the movement. Many years ago Jenny Lind, then in the height of her fame, gave a concert on behalf of the Royal Infirmary, the proceeds from which went largely towards building a new wing.

THE SOUTHERN HOSPITAL,

which in a quiet unobtrusive manner does a good work on the south side of the city amongst women and children, is about to extend the sphere of its usefulness by adding a lying-in department to its present operations. Seeing that we are practically without a lying-in hospital, the effort is one worthy of support.

THE ROYAL INFIRMARY

has recently made an attempt to obtain funds from a rather unusual source, by applying to the various Local Boards for a contribution out of the rates, and in several instances the application has met with success. An announcement made at a late meeting of the Infirmary Board that the Fever Hospital was about to be extended, at a cost of £3000, has caused some correspondence in the daily press from some who object to all the infectious disease in Manchester and neighbourhood being taken to one spot, and from others who dispute the right of the Infirmary Board to expend its funds at all on a matter which it is the duty of the health authorities to attend to. The neighbouring borough of Salford has just disposed of its Fever Hospital, to the London and North-Western Railway, for upwards of £20,000, so that the Corporation will have to make fresh arrangements for the isolation of their infectious disease.

FEVER HOSPITAL FOR BRADFORD.

The Town Council of Bradford, in the adjoining county of Yorkshire, have just purchased the Fever Hospital there from the trustees of the hospital for the sum of £10,000. As a result of the action taken by the Sanitary Association, the City Council will for the future publish its Health Committee's report annually, instead of biennially, as hitherto. It has also been successful in obtaining the use of the playgrounds

of various of the School Boards for the use of children in crowded districts to play in after school hours, and it is now engaged in stirring up the Corporation authorities about their building bye-laws, which have long been in an unsatisfactory condition.

THE VICTORIA UNIVERSITY.

As a result of the important and influential deputation that waited on the Chancellor of the Exchequer, asking for a grant from Imperial funds towards the expenses of the Victoria University, it is announced that £2000 per annum will be granted. The amount asked for was £2500 a year. The number of students presenting themselves for the University Examination shows a satisfactory increase. At the present and approaching examinations upwards of seventy students from Owens College alone have entered for the preliminary scientific and various medical examinations. It has been decided that the testimonial to Sir H. Roscoe, to commemorate his long connexion with the College, shall consist of a portrait, to be presented to himself, and, if enough money is available, the establishment of a scholarship, to be named after him.

The Hospital Sunday and Saturday collections have not, as was hoped, shown any increase on last year's amount. The sum collected amounts to only £7250. A few additional payments yet to come in may possibly raise it to that of last year's collection.

March 22nd.

EDINBURGH.

(From our own Correspondent.)

SCARLATINA AND MILK.

AT the last meeting of the Public Health Committee of the Town Council a report was submitted by Dr. Littlejohn, the medical officer of health for the city, detailing the results of his investigations into the cause of the recent epidemic of scarlatina in the north-west quarter of the town. The inquiry was specially directed towards ascertaining whether there were any causal relation between special sources of the milk-supply and the peculiar localisation of the outbreak. The results conclusively show that such is the case, the affected district being for the most part supplied from a source proved to have been contaminated shortly before the commencement of the epidemic. The farm thus singled out contributes 120 gallons daily to the milk-supply of the city; the milk is at present of good quality and in all other respects quite unobjectionable, but there is little doubt that eight weeks ago it was each day transmitting infective material from the farm, where fever was then present, to the very parts of the city since so alarmingly visited by the disease. These facts curiously emphasise the recommendations contained in an annotation on "The Use of Uncooked Milk" in last week's LANCET. The precaution of boiling for five minutes the whole of the milk supplied to each household has been largely carried out in Edinburgh since Dr. Foulis' letter on the subject appeared in the local papers some weeks ago. It has been questioned in some quarters whether this procedure is an absolutely reliable method of disinfecting milk, regard being had to the peculiar physical constitution of that menstruum in relation to the transmission of heat. The general impression, however, is that this is a most valuable precaution, and as such it has been widely recommended to and adopted by the intelligent classes of the population. Dr. Littlejohn's investigations are in the meantime actively continued, and an extra staff of subordinates is placed at his disposal for the purpose. In the City Fever Hospital there are at present 199 patients suffering from scarlatina.

THE PROPOSED FEVER CONVALESCENT HOME.

A question has been from time to time under the consideration of the Public Health Committee as to the propriety of establishing a convalescent home for patients discharged from the City Fever Hospital. A moot point was the legality of applying public funds to this purpose. This has been submitted for counsel's opinion. The legal adviser of the board regards such an addition as simply an adjunct or necessary appendage of a fever hospital; and, as such, he holds that the local authority have full powers for establishing a convalescent home in connexion with the hospital. They are under no statutory obligation to apply donations from grateful patients of the hospital in reducing the public health rates, hence such funds might be expended in defraying the expenses of the proposed institution.

EDINBURGH UNIVERSTY COURT

The Court met last Monday and approved the arrangements already reported, by which the site for the completion of the New Medical Buildings is to be acquired and the buildings erected. They also confirmed the recommendation of the Senatus Academicus granting leave of absence to Prof. William Rutherford for six months on account of health, approving also the arrangements made by which Prof. Caton of Liverpool will conduct the professional examinations in physiology in April and July of this year. With reference to a letter from Mr. Ashdown, M.B., which was under consideration, the Court were of opinion that his character had been completely vindicated by Prof. Rutherford's apology to him, and that it was unnecessary for the Court to take any steps for that purpose. Mr. Joseph Bell having ceased to lecture on clinical surgery, the removal of his name from the list of recognised lecturers was authorised.

THE CHAIR OF PHYSIOLOGY.

A somewhat premature notice of the appointment of Professor Haycraft, of Birmingham, to the post of substitute-Professor of Physiology in Edinburgh University, during Professor Rutherford's leave of absence, has appeared in one of your contemporaries. As a matter of fact, such an arrangement is reported to have been made privately between Professors Rutherford and Haycraft, and is to be shortly submitted for the approval of the Senatus Academicus.

MEDICO-CHIRURGICAL SOCIETY.

At the last meeting of the Society Professor T. R. Fraser read a valuable paper upon the Dyspnœa of Bronchitis and Bronchial Asthma, and detailed important clinical and experimental results obtained from the administration of nitrites in such cases.

THE ARTIFICIAL CULTURE OF FISH.

Mr. J. T. Cunningham, B.A., Superintendent of the Granton Marine Station, has communicated a paper on the artificial culture of fish to the Association of Science and Art. Of particular interest was his demonstration of the Macdonald jar, a recent invention employed by the American Commission for incubating ova. The dead eggs are removed automatically, and in consequence a much larger percentage come to perfection than when this is not the case. Each jar will accommodate about sixty thousand eggs.

Edinburgh, March 22nd.

PARIS.

(From our own Correspondent.)

THE NEW "SPECIFIC" FOR DIABETES.

DR. MARTINEAU gives full details in the last number of the *Annales Medico-Chirurgicales* of the treatment advised by him in diabetes. It was in consultation with the late Professor Rouget that he learned the formula which he now publishes with so much confidence. The patient in question had been the subject of diabetes for some years, and was suffering at the time from cerebral hæmorrhage. Dr. Rouget proposed that they should not modify his diet in any way beyond restricting in a slight degree the use of farinaceous food, fruits, and sugar, and that he should drink during meals and in the intervals of thirst arsenicated lithia water, prepared as follows: In the upper part of a Briet apparatus of 1 litre for making aerated water were to be introduced 20 centigrammes of carbonate of lithia, and a tablespoonful of the following solution: arseniate of soda, 20 centigrammes; distilled water, 500 grammes. This water to be drunk at meals mixed with wine, and the contents of the recipient to last for three meals. Before commencing the treatment the urine was found to contain 60 grammes per litre of sugar, being 212 grammes for the quantity voided in the twenty-four hours. Three weeks later, on Oct. 12th, 2 litres, instead of 3½, represented the daily secretion of urine, and the quantity of sugar 20 grammes per litre. On Oct. 29th there were 1½ litre of urine, and the amount of sugar 11 grammes

per litre. On November 14th the proportions had fallen to 1 litre of urine containing 4 grammes of sugar. On December 1st no sugar could be detected, and the daily average of the urine was 1 litre. The patient died four years later of uræmia caused by renal disease, and up to the time of his death no sugar had ever been found in the urine. Dr. Martineau gives two other cases in illustration, in which the treatment has kept the glycosuria in abeyance for six and five years respectively. In a third instance no sugar has been seen for six months. In all the patients with whom the treatment was successful there were, says Dr. Martineau, arthritic symptoms, either in the form of biliary or renal lithiasis, of articular manifestations, or of cutaneous eruptions. In the only three cases of failure there was no arthritism, but herpetic symptoms existed in the form of "nervovism" and skin eruptions. The disappearance of sugar from the urine is attributed by Dr. Martineau to the action of the lithia upon the glycogenic matter, which it helps to transform into glucose, and thence into carbonic acid and water. It is the presence of lithia that also explains the action of those natural mineral waters which are useful in diabetes. Taking for granted that the results are as stated by Dr. Martineau, it is somewhat remarkable that he should fall into therapeutic superstition, when there is a much more adequate physiological explanation. In all his successful cases the quantity of drink was restricted to a quart during three meals, whereas in the unsuccessful case, which is given for the sake of comparison, the patient drank three litres and voided an equal quantity of urine in the twenty-four hours. The late Dr. Hyde Salter found abstinence from liquids at meal-times the most useful of all treatment for asthma, and obstructed respiration is given by Pavy as a cause of diabetes, Brunton allowing that it is produced by deficient oxidation, which comes to the same thing. There is a group of allied affections characterised by the retention of the products of imperfect oxidation, and by functional disturbances of different kinds resulting therefrom, the cause and effect having a reciprocal action. Gout and nervous depression, obesity and imperfect respiration, are familiar examples. In these cases, as in rheumatism and other morbid conditions of the same kind, everything that promotes oxidation and excretion is of capital importance. Abstinence from alcohol and the use of the Turkish bath are valuable means to this end, but total abstinence from alcohol, with a strict limitation of fluids, is the most potent of all. Unfortunately it is extremely difficult, most especially in diabetes, to carry out such restrictions. If, however, lithia as administered by Dr. Martineau does enable diabetics to abstain from liquids, he may be congratulated upon having made a valuable contribution to practical medicine.

THE HEALTH OF PARIS.

The *Bulletin Hebdomadaire de Statistique Municipale* records thirty-seven deaths from typhoid fever, being a slight decrease upon the preceding week. But the admissions into the hospitals are more numerous than ever—ninety-six as against seventy-seven; and there is even reason to anticipate a continuance of the epidemic. The mortality from small-pox has increased from two to ten deaths, and the admissions into the hospitals from thirty to forty-one. This sudden outbreak is attributed to the arrival in Paris of a large number of unvaccinated workmen for the building of the forthcoming Exhibition, and Dr. Du Mesnil has laid before the Board of Health a project of compulsory vaccination. In an article in the *Bulletin Médical* he reminds his readers that the epidemic of 1870-71, which caused a mortality of more than 5000 persons, coincided with the arrival in Paris of the soldiers of the Garde Mobile, a large number being from Brittany, where vaccination is extremely insufficient. The commercial stagnation of the last few years had caused the departure of many of the workmen, and this has been followed by a great diminution in the number of deaths from small-pox. But the number of admissions to the hospitals has lately increased, and the authorities have been obliged to reopen special wards. Professor Proust, in his report on the subject, agrees with Dr. du Mesnil, and urges the authorities to proceed to the compulsory vaccination and revaccination of all workmen coming to Paris for employment upon the Exhibition.

PROVINCIAL EPIDEMICS.

An inquiry has been made into the sanitary condition of the Marine Barracks at Lorient, where typhoid is endemic, and causes annually from forty to fifty deaths amongst the troops. It has been found that the water is regularly contaminated with human excreta whenever there is rain, the conduits in masonry passing under fields and gardens so manured. At Brest an epidemic recently broke out in the training ship *Le Borda*. An analysis of the water showed the presence of the characteristic bacillus. There are also serious epidemics at the present moment in the Marine Barracks at Cherbourg, and amongst the soldiers of the 50th Regiment at Perigueux. The Governesses' Normal School of the Loire-Inférieure has been closed on the same account.

Paris, March 22nd.

NAPLES.

(From a Correspondent.)

ITALIANS complain that theirs is a severely-visited country—not in the sense of its being overrun with foreigners, for to these it owes a fifth of its annual revenue, but in the sense of its continual subjection to visitations atmospheric and telluric. What with floods, earthquakes, and cholera explosions, the last five years in Italy have certainly been prolific of death and disaster beyond the usual portion of humanity. In 1882 the inundations in the Venetian territory and in the Two Sicilies left a fearful tale of ruin and misery. In 1883 the earthquakes at Casamicciola reduced a garden-island of the Mediterranean into a sombre, silent waste. In 1884 the most terrible outbreak of cholera within living memory swept the Italian seaboard from the Riviera to the Messina Straits, alighting with such force on Naples as, in one night, to strike down two thousand of the inhabitants, of whom one thousand died in a few hours. In the following two years the scourge extended to Sicily, while continuing its ravages among the littoral and river-side population of the peninsula; and now another telluric storm has raged along the Riviera Levante e Ponente, overthrowing towns, engulfing their inhabitants, and leaving a moral and material ruin behind it which years will not repair. Well may the *Popolo Romano* say: "If calamities are so many trials to strengthen the character, we Italians bid fair to become the strongest people in the world."

To do her justice, Italy is so far profiting by this probation as to be improving her position in view of a recurrence of such disasters. Floods, so largely due to the destruction of forests by felling, she is preparing to obviate by stringent regulations for replanting the denuded mountain-sides; cholera visitations, invited by insanitary conditions, she will in future keep at bay by vigilant hygienic surveillance; while so far as seismology can forewarn against telluric storms, and suggest opportune precaution or provision, she is to aid experts in that infant science, like the Padre Denza and Michele di Rossi, with enhanced means of research and internuncial communication. As to the sanitary side of her endeavours, here in Naples we have ample evidence of her sincerity and energy, the water-supply being now the finest in the peninsula—inferior, if at all, to that of Rome, and inferior in abundance only. "Out of the nettle Danger to pluck the flower Safety" should be her watchword for half a century to come—far more justly, indeed, than the "si vis pacem, para bellum," which, in practice, is crushing her, like other continental powers, under the weight of "bloated armaments."

The resources of the Spedale della Trinità are severely taxed to accommodate and treat the wounded survivors of the Dogali massacre whom the troopship *San Gottardo* deposited here on Feb. 22nd. Certainly the literature of surgery will be conspicuously enriched by the official report of the Trinità staff when it sees the light; gunshot wounds, incised wounds, and lacero-contusions of every variety, and sometimes all three on one and the same soldier figuring amongst its most prominent details. Meanwhile the courage of the medical officers who died as combatants on that tragic field has evoked from all Italy the proudest eulogy. In Rome a special meeting of the Royal Academy of Medicine was convened to express the feelings of the profession on the subject, and in its president, the Hon. Guido Baccelli, no better spokesman for the occasion could have been found. At the close the following order of the day was carried by acclamation: "The Royal Academy of Medicine at Rome draws the attention of all Italy's scientific bodies to the

heroic conduct on the battlefield of Dolgali of the army surgeons, Captain Nicola Gasparri and Angelo Ferretti."

Cardiac neuroses due to syphilis are engaging particular attention just now, especially in the clinic of Professor Semmola. The venereal taint is a well-known factor in organic disease of the heart; functional disturbance of that organ, due to the same cause, has been much less carefully worked out. More than fifty such cases have come under Professor Semmola's cognisance. Weak systole, intermittence, di-systole, were common to all; while the respiratory process, though its apparatus was quite sound, became distressed on mounting stairs or in hurried walking. Hitherto physicians have diagnosed such cases as due to nervous exhaustion, and have prescribed the usual remedies—tonics, rest, country or sea air, and so forth. But after weeks or months of such treatment the symptoms remained as before, or were often aggravated. "The use of mercury, however," says Professor Semmola, "in the form of hypodermic injections of corrosive sublimate, and the use of iodide of potassium *vid* the stomach, produced in all these cases progressive amelioration, and finally a total disappearance of the functional derangement, while the improvement of the whole system was most marked." Dr. Vincenzo Vitoni, in an able contribution to the discussion, says: "Functional derangements of the heart, unaccompanied by the physical signs of endocarditis, aortitis, and so forth, when they occur in patients affected for some time by constitutional syphilis, and in whom hygienic conditions and the cure of symptoms have failed to induce a return to normal cardiac action, justify the physician in first prescribing iodide of potassium in progressive doses, and then, after fifteen or twenty days, in trying mercurials with the caution that characterises good clinical practice. It were idle to theorise on the *modus operandi* of syphilis in causing functional derangements of the heart—due, as they might be, to arteritis of the coronaries, to primary nutritive irritations of the myocardium, to incipient arterio-sclerosis, or to a general undetermined dyscrasic condition of a clinical type. What emerges clearly from the facts is this, that we have to deal with a pathological state of the heart quite amenable to iodide of potassium and to mercury." Professor Semmola does not share the belief, any more than does Dr. Vitoni, that mercury is always contra-indicated in cardiac affections. Caution, after due diagnostic investigation, is all they plead for. The whole subject is well discussed in *La Terapia Moderna*, a monthly organ of the Neapolitan school, which began its career, with good augury, on Jan. 1st.

Naples, March 6th.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AT an extraordinary meeting of the Council held on Thursday, the 24th inst., the minutes of the last ordinary meeting were read and confirmed. The following resolution was carried *nem. con.*: "That the Council see no cause to alter their decision regarding the admission of the Apothecaries' Society to the Conjoint Scheme." A letter was read from Sir H. Pitman, forwarding a copy of the resolution passed by the Royal College of Physicians on the same subject.

Two memorials, signed by several thousand persons, were submitted to the Council, in opposition to a memorial laid before the Council advocating the endowment of an institution for the promotion of physiological and pathological research.

A letter was read from the Councils of University and King's Colleges, inviting the College to confer with representatives of those Councils and of the Royal College of Physicians of London on the subject of a joint application to the Crown on behalf of the four institutions for powers to grant degrees in Medicine and Surgery. This letter was referred to the Committee of Delegates on the subject of granting degrees in Medicine and Surgery.

The following motion by Mr. Croft was lost, four voting in its favour and twelve against: "That before each election to the Court of Examiners the lists of Fellows who are candidates shall be considered by a small committee, to be appointed annually by the Council, who shall have power to recommend to the Council one or more of the candidates for each vacancy."

MEDICAL NOTES IN PARLIAMENT.

The Pharmacy Acts Amendment Bill.

IN the House of Lords, on the 18th inst., this Bill was passed through Committee, with a few verbal amendments.

On the 22nd inst. the report of amendments was brought up and agreed to, and on Thursday, the 24th, the Bill was read a third time and passed.

Vaccination and Disease.

In the House of Commons on the 18th inst. Mr. Ritchie, in reply to Mr. M'Arthur, stated that revised instructions have been issued to public vaccinators with a view to minimise the risks of vaccination. The order for the careful examination of vaccinifers as to the existence of skin diseases, and particularly of hereditary syphilis, was contained in the old instructions. The Local Government Board has no evidence of syphilis having been communicated by vaccination from a child not itself presenting signs of syphilis.

Anthrax.

On the 21st inst., in reply to Sir J. Swinburne, Mr. W. H. Smith, in the absence of Lord J. Manners, stated that an inquiry in reference to the recent outbreaks of anthrax is now being conducted by the officers of the Agricultural Department. There is no reason, however, to believe that the disease has been more prevalent during the last six months than previously. The Anthrax Order of September last imposes on the owners of animals the obligation to give notice of the disease, and on the inspectors the duty of making returns weekly; hence public attention has been called to outbreaks which otherwise would have escaped notice. None of the outbreaks have been traced to railway trucks in which foreign hides had been previously carried.

On the 22nd inst., in reply to Mr. Tollemache, Mr. W. H. Smith stated that the Government do not propose to treat anthrax in the same manner as pleuro-pneumonia, as they are advised that the two diseases are of a totally different character. Slaughter in anthrax would in most cases be impracticable, as animals are usually found dead without any warning, or die very quickly after the symptoms become apparent. Further, as the disease does not spread by association of diseased with healthy animals, as is the case with pleuro-pneumonia, slaughter and compensation would only be for the benefit of the owner, and not for the community.—In reply to Sir J. Swinburne, Mr. W. H. Smith said that the recent outbreak of anthrax in Cheshire has apparently been confined to one farm, and chiefly affected swine, of which thirty-four are reported to have died, and also three sheep. No cases have been reported since March 19th. Immediately the disease was recognised the local authority took action under the Anthrax Order and prevented the movement of animals from the farm. An inspector of the Privy Council has visited the farm, and from his report it does not appear that there is anything remarkable in the outbreak of anthrax, which disease, it is said, occurs every year on this farm, and is accounted for by the existence of insanitary conditions which are most favourable for the development of the disease.

The Alleged Neglect at Guy's Hospital.

On the 21st inst. in reply to Mr. W. Corbet, Mr. Matthews said that he had been informed by the medical superintendent of Guy's Hospital that the facts of Stack's case are as follows: Stack was brought to the hospital at 7 P.M. on Monday, and was found to be suffering from a simple fracture of the small bone of his leg. He was taken into the accident ward for the night and received immediate attendance, and, as is usual in the case of similar injuries, the limb was temporarily placed in sandbags, and in the course of a few hours, between 11 and 12, the limb was put up permanently in plaster-of-Paris bandages. Stack was discharged on the following day, with a pair of crutches supplied at the expense of the hospital, and without any charge to Stack or his relatives. When Stack came to the hospital every bed in the ward was occupied, but one of the occupants, who was leaving the next morning, was placed on a stretcher, and thus made room for Stack. The hospital authorities seemed to have done all that was proper on this occasion.

The Planting of Cinchona.

In reply to Mr. Henniker Heaton, Sir J. Gorst said that one of the objects, but not the only one, of planting cinchona by the Madras Government was for the purpose of obtaining a febrifuge for the native classes. Government bark is advertised for sale in London, and comes to England for the manufacture of quinine. Government gets quinine for its medical departments at wholesale prices, and makes the "red bark" into an effective febrifuge cheap enough to be within the reach of all classes.

Pleuro-pneumonia.

In reply to Sir J. Swinburne, Mr. A. J. Balfour stated that Clause 6 of the Contagious Diseases (Animals) Amendment Act gives the Privy Council authority to make orders giving large powers to local authorities for the slaughter of animals which may have been in the same shed or field as diseased animals, and that the question as to how far the provisions of this clause can be enforced with the least inconvenience and expense is at present engaging the attention of the Privy Council Veterinary Department.—In reply to Mr. O'Doherty, Mr. A. J. Balfour stated that the regulations for the shipment of cattle are as carefully devised as possible. They are identical in England and Ireland, and are the same for cross Channels steamers as for those carrying cattle to Great Britain from other countries. The shipment of animals is superintended by officers of the Veterinary Department, who do all in their power to prevent any cruelty or infringement of the regulations, and he was afraid that no further action on the part of the department seems practicable.

Court-house Accommodation.

On Thursday, in reply to Sir J. Pearse, who asked if, in view of the unsatisfactory condition of the accommodation afforded to prisoners awaiting trial in many of the Court-houses in England and Wales, the Government would institute an investigation into the matter, Mr. Matthews said he was informed the accommodation was satisfactory, but in order to allay public anxiety on the subject an inquiry would be made.

Obituary.

ROBERT EDMUND CARRINGTON, M.D. LOND., F.R.C.P.

DR. R. E. CARRINGTON, whose sad death we announced last week at the early age of thirty-three years, was the second son of F. G. Carrington, Esq., for many years editor and one of the proprietors of the *Gloucestershire Chronicle*, and grandson of N. T. Carrington, Esq., a well-known Devonshire poet. He was educated at the King's School, Gloucester, where he took a scholarship, and then became a pupil at the Gloucester Infirmary, where he remained for a year, and entered at Guy's Hospital in 1870, taking a second prize in Arts on entrance. His student career was remarkably brilliant, for he obtained the silver medal in botany at the Apothecaries' Hall in 1872, and at the Preliminary Scientific Examination in the same year he was placed first (with the exhibition) in both chemistry and zoology, and took Honours also in botany. In 1874 he passed the Intermediate M.B. Examination, and was awarded the exhibition and gold medal in chemistry and materia medica, and placed second in physiology. In 1875 he became a member of the Royal College of Surgeons, and in the next year filled the offices of house-surgeon and resident obstetrician at Guy's Hospital. He was then appointed demonstrator of anatomy, and taught well and assiduously in this post for more than five years. He was a most painstaking and methodical teacher, and his accuracy of detail is well shown in a Manual of Dissections which he published, and which is the only text-book showing the student how questions on given dissections should be answered. On this account it became very popular with candidates for the higher anatomical examinations. During his demonstratorship he suffered from a severe attack of typhoid fever, and it is questionable whether he ever really regained his former robust health. In 1878 he passed his M.B. Examination, obtaining the second place and a gold medal in medicine, with Honours in forensic and obstetric medicine. In 1879 he became an M.D. Lond., and a Member of the Royal College of Physicians, obtaining the Fellowship last year. Whilst still a demonstrator of anatomy at Guy's Hospital, he was elected in 1880 a visiting physician to the Seamen's Hospital, and he here showed the excellence of his training at Guy's as a most accurate clinical observer and a good pathologist. He contributed many articles to Guy's Hospital Reports and to the Pathological Society's Transactions, and was a regular attendant and contributor to the latter Society. In 1883, having previously worked as medical registrar and demonstrator of pathology at Guy's, he was appointed assistant-physician; and he also took charge of the skin department. At the time of his death he held the following appointments at Guy's Hospital: Senior Assistant-Physician; Senior Demonstrator of Pathology; Curator of the Museum; being also one of the editors of the Guy's Hospital Reports and Sub-dean of the Medical School. He had thus steadily advanced along the lines of Fagge, Moxon, Wilks, and others, and like them promised fair to be one of the best clinical teachers and pathologists of the day. But perhaps in addition to his scientific as well as medical learning and his teaching capacity, the late Dr. Carrington had endeared himself to his colleagues, contemporaries, and pupils, more especially by his exceeding good-nature and willingness to do any service possible for his friends. The familiar "Bob" Carrington perhaps best expresses the sterling kindness which he was always ready to devote to anyone who required assistance of any kind. He was one of the best examiners at the College of Physicians and at the London University, never losing his temper, even with the most trying candidate. The last important work which he undertook was the editing of Fagge's "Principles and Practice of Medicine," and the amount of patient work and unflagging industry which he gave to his labour of love can scarcely be too highly estimated. Dr. Carrington was a member of the University of London Lodge of Freemasons. For some years past it had been evident to his many friends that he was overworking himself, but the news of his fatal illness came on them with startling suddenness. He got wet on the 11th inst., and had a rigor on the following day; but feeling better on the 13th, he performed a post-mortem examination on a case of acute glanders, but there is no reason to suppose that he contracted infection. In the evening his temperature had risen, and on the next morning Dr. F. Taylor ascertained that he was suffering from double pleuro-pneumonia. He was apparently doing well on the next day, but on Wednesday morning, the 16th, he died rather suddenly and unexpectedly. He was buried at Norwood Cemetery on Saturday last.

To the Editors of THE LANCET.

SIRS,—Though not a Guy's man, allow me to offer a word of tribute to the memory of Dr. Robert E. Carrington, by whose death a career has been closed which gave promise of exceptional brilliancy. Dr. Carrington was well known to many as a loving son to his widowed mother and a devoted brother and friend. Unassuming and self-denying to a fault, ever ready to help in time of need, and a true friend of the poor, his charity was of the noblest type, for of himself he gave. In the conscientious devotion to many duties his mental powers had long outstripped his physical strength. While battling bravely on with but indifferent health, his body became a fertile ground for the ripening of the acute disease which, alas! too soon, has robbed us of a noble life, leaving his loved ones bowed down with sorrow and almost broken-hearted.

I am, Sirs, yours obediently,

London-bridge, S.E., March, 1887. R. DENISON PEDLEY.

ROBERT BRYCE GILLAND, M.D. GLAS., &c.

ON March 8th Dr. Robert Bryce Gilland died at Sevenoaks, at the age of forty-nine. Educated at the University of Glasgow, he obtained his degrees in 1860, became one of the house-surgeons of the Royal Infirmary, and, after finishing his term of office there, was appointed assistant medical superintendent at Gartnavel Lunatic Asylum. From this time he made up his mind to devote himself to the special line of lunacy practice. After two years' residence at Gartnavel, he removed to Essex County Asylum as assistant to the late Dr. Campbell. Thereafter, upon the founding of the Berks County Asylum, he applied for and obtained the onerous and responsible post of medical superintendent of that institution. He was of material assistance to the magistrates in completing the arrangements of this asylum. For seventeen years Dr. Gilland devoted himself to his duties, which he carried out with a precision and earnestness worthy of the highest commendation. It was only necessary to read one of his annual reports to get an idea of his peculiar fitness for the work he had in hand. His method of treating the insane was quite up to the most advanced views of the present day. A marked feature in the routine of the year was his Christmas entertainment, consisting usually of amateur theatricals followed by a ball.

Dr. Gilland was unmarried. Of him it might almost be said that he died in harness. But a short time ago his health broke down. He then, by the advice of his friends, resigned his post, retired to quietude at Sevenoaks, where he peacefully expired on the date above mentioned. Besides holding the degree of Doctor of Medicine, he was a Licentiate of the Glasgow Faculty of Physicians and Surgeons, Member of the Royal College of Surgeons of England, and a Licentiate of the Apothecaries' Company. His remains were removed to Scotland, and interred in the family grave at Kilmarnock.

PRESENTATIONS.—At a public meeting on March 13th at St. Etienne, France, Dr. H. Burroughs was presented with a gold watch in recognition of his services to the McAll French Medical Mission, a branch of which is established in that city. Mr. John Wright Baker, of Derby, who is retiring from practice, was on the 18th inst. entertained at dinner by a large number of his professional brethren of the town and country. In the course of the evening Mr. Baker was presented with an album containing a number of views of Derbyshire and a silver tea-kettle with appropriate inscription.

NORTH LONDON HOSPITAL FOR CONSUMPTION.—At an annual meeting of the Court of Governors of the hospital, Dr. Edwin Howard was unanimously elected a vice-president of that institution.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—Certificates in Hygiene were granted to the following gentlemen, who have passed the required examinations, on March 21st:

Cantile, James, M.B. Aberd., Suffolk-street.
Davis, Weston Peel, Gloucester-terrace, Bayswater.
Greenwood, Major, Queen's-road, Dalston.
Gubb, Alfred Samuel, Grove, Hammersmith.
Hitchins, Thomas Johns, Broadfield, Crawley.
James, Charles Alfred, Dispensary, Stoke Newington.
Sanders, John William, M.D. Brussels, Bethnal-green Infirmary.
Webb, Charles Alfred, Brockhurst, Gosport.

COLLEGE OF PHYSICIANS IN IRELAND.—At the March examinations the following obtained licences in Medicine and Midwifery of the College:—

MEDICINE.—Samuel Boake, Arthur Edward Clarke, William Barclay Dick, John Exley, William Isaac Fern, Hu Ruskin Hancock, Frederic William Ord, George Shapland Passmore.
MIDWIFERY.—John Exley, William Isaac Fern, Hu Ruskin Hancock, Vincent Nash, Edward Francis O'Sullivan, Frederic William Ord, George Shapland Passmore.

The undernamed has been admitted a Member:—

Evelyn R. H. Pollard, Staff Surgeon, R.N.

SOCIETY OF APOTHECARIES.—The following gentlemen passed the examination in the Science and Practice of Medicine, Surgery, and Midwifery, and received certificates to practise on March 17th:—

Simson, Francis Taylor, Viceroy-road, South Lambeth.
Tinker, William, Cromwell-road.
Wickham, Onslow Arthur, M.R.C.S., Arundel-square.

IT is officially notified that the Privy Council has sanctioned the bye-laws of the Institute of Chemistry.

DR. JAMES CURTIS, of Cork, has been appointed Inspector of Anatomy for Munster, in the room of the late Dr. Beamish.

MR. THOMAS G. LAW, librarian to the Writers to the Signet Society, has been appointed librarian to the Royal College of Physicians of Edinburgh, in succession to the late Dr. Small.

VACCINATION GRANT. — Mr. John H. Hughes, L.R.C.P. Lond. and M.R.C.S., of the Ombersley district of the Droitwich Union, has received the Government grant for efficient vaccination (sixth time).

HOMES FOR INEBRIATES.—At the annual meeting in connexion with the Homes for Inebriates Association, Dr. Cameron, M.P., was elected president, Canon Duckworth chairman, and Dr. Norman Kerr hon. sec. The three years' work at the Dalrymple Home shows over half the inebriates discharged doing well.

YORK COUNTY HOSPITAL.—At the annual court of the trustees and governors of this institution on the 22nd inst., it was unanimously decided that the York Eye Institution should be amalgamated with the hospital. Satisfactory financial and general reports for the past twelve months were presented and adopted.

ST. JOHN AMBULANCE ASSOCIATION.—The class of Royal Engineer officers held by the St. John Ambulance Association at Chatham, and instructed by Surgeon-Major McNalty, has been examined by the principal medical officer of the district, Deputy Surgeon-General E. Roberts, and out of thirty-four candidates, the whole are reported to have passed an excellent examination in first aid to the injured.

PARKES MUSEUM.—At a meeting held at the Parkes Museum on the 17th inst., Dr. E. F. Willoughby delivered a lecture on George Varrentrapp, sanitarian and philanthropist. A course of twelve lectures by well-known authorities for the special instruction of those desirous of obtaining knowledge of the duties of sanitary inspectors will be delivered in April and May.

THE EPIDEMIC OF MEASLES AND SCARLET FEVER AT GOOLE.—In consequence of the increased number of cases of scarlet fever and measles in the town of Goole, the members of the Goole School Board have decided to close their schools in Alexandra-street and Old Goole for a further fortnight. Alexandra-street Schools have already been closed a fortnight, while those in Old Goole have been kept open.

HYDROPHOBIA IN EGYPT.—An outbreak of rabies and hydrophobia is reported to have occurred at Cairo; a large number of persons have been bitten by rabid dogs and have died of hydrophobia. It is stated that the introduction of the malady is traced to a hound belonging to a European officer, which has bitten several native dogs. Some five or six thousand native dogs have been destroyed, but it is believed that many rabid dogs still remain.

THE RECENT EARTHQUAKES AT MENTONE.—The Rev. Henry Sidebotham, Chaplain of St. John's Church, Mentone, dating from that town, March 18th, writes in the *Standard*:—"I desire to contradict a report which appeared in one of your contemporaries, that 'all the doctors fled' after the earthquake, and to assure your readers that, to my own knowledge, the English doctors, without exception, went their rounds as usual every day, and were ready to attend to all who needed them, although three of them had been rendered homeless by the injury done to their houses."

FOOTBALL.—The final tie for the Inter-Hospital Football Challenge Cup was played on Tuesday last at Richmond, between Middlesex and St. Thomas's. After a well-contested struggle the Middlesex Hospital team was successful, beating their opponents by nearly twenty points. On the same evening the united clubs of Middlesex Hospital held their annual dinner, under the presidency of Mr. A. Hensman, Mr. Henry Morris and Mr. Pearce Gould occupying vice-chairs. The fact that this hospital holds both the Football Challenge Cup and the Rowing Challenge Cup lent additional interest and enthusiasm to the gathering.

THE JUBILEE. — To commemorate the Queen's Jubilee, the Salt family, of Saltaire, have offered to transfer to the public forty-five private almshouses, providing accommodation for sixty people, with extensive grounds and an infirmary, built at a cost of £40,000, as well as £30,000 left under the will of the late Sir Titus Salt for the benefit of the poor people of the district as an endowment fund.—It has been decided to erect a new hospital at Dover, at a cost of from £5000 to £6000, in comemoration of the Jubilee.—At Lewes it has been decided to raise subscriptions for the enlargement and improvement of the local infirmary and dispensary, and to change the name to Victoria Hospital.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

ANDERSON, TEMPEST, B.Sc., M.D.Lond., M.R.C.S., has been appointed Ophthalmic Surgeon to the York County Hospital.

BRADBURY, A. F., M.B., B.S., has been appointed District Surgeon to the Salford and Pendleton Royal Hospital.

BULLOCK, B., M.R.C.S., has been appointed House-Surgeon to the Birmingham General Hospital.

CHITTENDEN, H., L.R.C.P.Lond., M.R.C.S., has been appointed Medical Officer for the Third District of the Hitchin Union.

CLARK, ROBERT, L.R.C.P.Ed., L.R.C.S.Ed., has been appointed Medical Officer to the Post Office, Lancaster.

COLLISON, F. W., M.B., C.M.Ed., M.R.C.S., has been appointed Senior House-Surgeon to the Preston and County of Lancaster Royal Infirmary, vice Moore, resigned.

COOK, T. DIXON, M.B., C.M.Glas., has been appointed Medical Officer for the Torquay District of the Newton Union.

DUNCAN, B. ARCEDECKNE, M.D., M.R.C.P., has been appointed Consulting-Physician to the National Hospital for Diseases of the Heart and Paralysis.

GRENFELL, HENRY O., L.R.C.P.Lond., M.R.C.S., has been appointed Assistant Medical Officer for the Infirmary of the Wandsworth and Clapham Union.

HACKETT, H. E., L.R.C.P.Lond., M.R.C.S., has been appointed Medical Officer for the Sixth District of the Chorlton Union.

HARRIS, H. E., L.R.C.P., M.R.C.S., has been appointed Assistant Medical Officer to the Paddington Workhouse Infirmary.

KINGSFORD, PERCIVAL, M.R.C.S., &c., has been appointed Medical Officer to the Welsh High School for Girls, Ashford, vice Edward Kingsford, F.R.C.S., resigned.

PESKETT, ALFRED FREEMAN, M.R.C.S., L.S.A., has been appointed Medical Officer and Public Vaccinator to the Leyton District of the West Ham Union.

SAUL, W. WINGATE, M.D., M.R.C.S., L.S.A., has been appointed Medical Officer to the Post Office, Lancaster.

WARWICK, FRANCIS J., B.A., M.B.Cantab., M.R.C.S., has been appointed Public Vaccinator for the Shepperton District of the Staines Union.

Vacancies.

In compliance with the desire of numerous subscribers, it has been decided to resume the publication under this head of brief particulars of the various Vacancies which are announced in our advertising columns. For further information regarding each vacancy reference should be made to the advertisement.

BRADFORD INFIRMARY AND DISPENSARY.—House-Surgeon. Salary £110 per annum, with board and washing.

BRISTOL HOSPITAL FOR SICK CHILDREN AND WOMEN.—House-Surgeon. Salary £120.

BROMPTON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Resident Clinical Assistant.

BURTON-ON-TRENT FRIENDLY SOCIETIES' MEDICAL ASSOCIATION.—Resident Surgeon.

CHELTENHAM GENERAL HOSPITAL.—House-Surgeon. Salary £80 per annum, with board and apartments.

FARRINGDON GENERAL DISPENSARY AND LYING-IN CHARITY, Bartlett's Buildings, Holborn, E.C.—Honorary Physician.

GLOUCESTER COUNTY ASYLUM.—Third Assistant Medical Officer. Salary £165 per annum, with board, lodging, and washing.

HOSPITAL FOR WOMEN, Soho-square, W.—Clinical Assistants. Fee for course of three months, £5 5s.

KENT COUNTY LUNATIC ASYLUM, Barming-heath, near Maidstone.—Third Assistant Medical Officer. Salary £120 per annum, with furnished quarters, attendance, fuel, lighting, milk, garden produce, and washing.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Senior House-Surgeon. Salary 50 guineas per annum, with board and residence.

MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer of the Convalescent Home at Cheadle. Salary £150 per annum, with board and residence.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—Superintendent of the Laboratory for Original Research about to be established. Salary £200 per annum.

ROYAL GENERAL DISPENSARY, Bartholomew close, E.C.—Resident Medical Officer. Salary £130 per annum, with residence.

ROYAL SOUTH HANTS INFIRMARY, Southampton.—Assistant to the House-Surgeon. Board, lodging, and washing.

SHEFFIELD FRIENDLY SOCIETIES' MEDICAL INSTITUTION.—Resident Medical Officer. Salary £170 per annum, with residence, coal, gas, water and rates free. Accouchements and vaccinations extra.

UNIVERSITY COLLEGE, London.—Professor of Chemistry.

Births, Marriages, and Deaths.

BIRTHS.

ASHWORTH.—On the 19th inst., at Halstead, Essex, the wife of J. Henry Ashworth, M.R.C.P.Ed., of a son.

COMBE.—On the 9th inst., at Holly House, North Walsham, Norfolk, the wife of F. Orloff Combe, M.B., C.M.Edin., of a son.

DAVY.—On the 20th inst., at Southernhay, Exeter, the wife of Henry Davy, M.D., of a son.

MATTHEWS.—On the 19th inst., at Suffolk-street, Pall-mall, the wife of Valentine Matthews, M.R.C.S., of a son.

NEWMAN.—On the 19th inst., at Ivy House, Audlem, Cheshire, the wife of Horace Townsend Newman, M.D., L.R.C.S.I., of a son (still-born).

TWINING.—On the 18th inst., at Salcombe, South Devon, the wife of Alfred H. Twining, M.R.C.S., of a son.

VACHER.—On the 22nd inst., at 31, Shrewsbury-road, Birkenhead, the wife of Francis Vacher, F.R.C.S., of a son.

MARRIAGES.

GUINNESS—REED.—On the 17th inst., at the Great Assembly Hall, Mile-end-road, Harry Grattan Guinness, M.R.C.S., to Annie, daughter of the late Henry Reed, Esq., of Mount Pleasant, Launceston, Tasmania.

MURRAY—VOSS.—On the 22nd inst., at St. James's, Piccadilly, Hubert Montague Murray, M.D., to Florence, third daughter of the late John Matthew Voss, of Swansea.

DEATHS.

BRODIE.—On the 15th inst., at the Royal Victoria Hospital, Netley, Surgeon John Brodie, M.B., Medical Staff, aged 38.

CARRINGTON.—On the 16th inst., at St. Thomas's-street, Southwark, after two days' illness (of pneumonia), Robert Edmund Carrington, M.D., F.R.C.P.Lond., Senior Assistant Physician, Guy's Hospital, in his 34th year.

HALL.—On the 18th inst., at his residence, Gorse Bank, Werneth, Oldham, William Hall, M.R.C.S., late of Salford, aged 61.

JACKMAN.—On the 21st inst., Edith, wife of William Thos. Jackman, M.R.C.S., of 114, Brixton-hill, and daughter of the late Mrs. Edward Radclyffe, of 61, King Henry's-road, South Hampstead, in her 34th year.

MACGILL.—On the 17th inst., Andrew MacGill, M.D., late of Church House, St. Leonards-road, Poplar.

THORNTON.—On the 20th inst., at Hastings, William Henry Thornton, J.P., M.R.C.S., of Berkeley Lodge, Margate, aged 65.

THURLAND.—On the 23rd inst., at Wilmington-square, W.C., Francis Edward Thurland, M.R.C.S., L.S.A., aged 40.

WOOLHOUSE.—On the 13th inst., at Cadogan Lodge, St. Mary's-crescent, Leamington, George Richard Woolhouse, M.R.C.S., L.S.A., Army Medical Department, retired, formerly in H.M.'s 44th Regiment, aged 65.

WOOLLETT.—On the 19th inst., at his residence, The Mount, Newport, Mon., Robert Francis Woollett, M.R.C.S., L.S.A.—R.I.P.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week.

Monday, March 28.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10.30 A.M., and each day at the same hour.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1.30 P.M., and each day at the same hour.

CHELSEA HOSPITAL FOR WOMEN.—Operations, 2.30 P.M.; Thursday, 2.30.

ST. MARK'S HOSPITAL.—Operations, 2 P.M.; Tuesday, 2.30 P.M.

HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M., and on Thursday at the same hour.

METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.

ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.

CENTRAL LONDON OPHTHALMIC HOSPITALS.—Operations, 2 P.M., and each day in the week at the same hour.

SOCIETY OF ARTS.—8 P.M. Prof. W. C. Unwin: Machines for Testing Materials, especially Iron and Steel (Cantor Lecture).

MEDICAL SOCIETY OF LONDON.—8.30 P.M. Clinical Evening: Dr. J. Hughlings Jackson: (1) Case of Hemianopsia and of Wasting and Paralysis of One Side of the Tongue in a Syphilitic Patient; (2) A case of Facial Paralysis with Paralysis of the Palate from Cerebral Disease.—Dr. Samuel West: (1) Case of Post Hemiplegic Hemichorea in an Adult; (2) Case of Jacksonian Epilepsy.—Dr. de Havilland Hall: Two cases of Ulceration of the Soft Palate and Pharynx.—Mr. Lennox Browne: Case of Lympho-sarcoma of the Tonsil and Pharynx.

Tuesday, March 29.

GUY'S HOSPITAL.—Operations, 1.30 P.M. and on Friday at the same hour. Ophthalmic Operations on Monday at 1.30 and Thursday at 2 P.M.

ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 4 P.M.; Friday, 2 P.M.

CANCER HOSPITAL, BROMPTON.—Operations, 2.30 P.M.; Saturday, 2.30 P.M.

WESTMINSTER HOSPITAL.—Operations, 2 P.M.

WEST LONDON HOSPITAL.—Operations, 2.30 P.M.

ST. MARY'S HOSPITAL.—Operations, 1.30 P.M. Consultations, Monday, 1.30 P.M. Skin Department, Monday and Thursday, 9.30 A.M.

ROYAL INSTITUTION.—3 P.M. Prof. Gamgee: Function of Respiration.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 P.M. Dr. Priestley: Pathology of Intra-uterine Death (Lumleian Lecture).

SOCIETY OF ARTS.—8 P.M. Mr. Richard Bannister: Colonial Wines.

Wednesday, March 30.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.

MIDDLESEX HOSPITAL.—Operations, 1 P.M.

ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour. Ophthalmic Operations, Tuesday and Thursday, 1.30 P.M. Surgical Consultations, Thursday, 1.30 P.M.

ST. THOMAS'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour.

LONDON HOSPITAL.—Operations, 2 P.M.; Thursday & Saturday, same hour.

GREAT NORTHERN CENTRAL HOSPITAL.—Operations, 2 P.M.

SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2.30 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; Saturday, 2 P.M. Skin Department, 1.45 P.M.; Saturday, 9.15 A.M.

ROYAL FREE HOSPITAL.—Operations, 2 P.M., and on Saturday.

KING'S COLLEGE HOSPITAL.—Operations, 3 to 4 P.M.; Friday, 2 P.M.; Saturday, 1 P.M.

CHILDREN'S HOSPITAL, GREAT ORMOND-STREET.—Operations, 9 A.M.; Saturday, same hour.

SOCIETY OF ARTS.—8 P.M. Mr. A. Ruckenzaun: Electric Locomotion.

Thursday, March 31.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M. Ophthalmic Operations, Friday, 1.30 P.M.

CHARING-CROSS HOSPITAL.—Operations, 2 P.M.

NORTH-WEST LONDON HOSPITAL.—Operations, 2.30 P.M.

ROYAL INSTITUTION.—3 P.M. Prof. F. Max Müller: Science of Thought.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 P.M. Dr. Priestley: Pathology of Intra-uterine Death (Lumleian Lecture).

Friday, April 1.

ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—8 P.M. Clinical Evening. Cases will be shown by Mr. Keetley, Dr. Scanes Spicer, Dr. Seymour Taylor, Mr. Edwards, Dr. Colcott Fox, Mr. Bland Sutton, and others, Dr. W. G. Stevenson and Mr. Bruce Clarke: A Demonstration upon the Living Subject of the Treatment of Stricture of the Urethra by Electrolysis.—Dr. Alderson: Remarks upon a case of Fracture of the Patella, treated mechanically twenty-five years ago, with specimen. Pathological Specimens:—Mr. H. Percy Dunn: (1) Epithelial Growth of Pharynx; (2) The Skull from a case of Traumatic Meningocele.—Mr. G. A. Webster: Fracture of the Astragalus.—Brigade-Surgeon W. Curran: A Collection of Water-colour Drawings.

CLINICAL SOCIETY OF LONDON.—8.30 P.M. Sir Dyce Duckworth: A case of Psoriasis, with associated Rheumatism, which passed into Pityriasis rubra (*Dermatitis exfoliativa*).—Mr. Bellamy: Case of Symmetrical Gangrene following Varicella.—Mr. Lane: A case of Intussusception produced by a Tumour growing from the Mucous Membrane of the Great Gut.—Mr. Pollard: Three cases illustrating the Difficulties in establishing Natural Respiration after Tracheotomy, and their Treatment by Tracheal Catheterisation.—Dr. Drewitt: A case of Lupus treated partly by Salicylic Acid, partly by Scraping (living specimen).

ROYAL INSTITUTION.—9 P.M. Prof. Dewar: Light as an Analytic Agent.

Saturday, April 2.

MIDDLESEX HOSPITAL.—Operations, 2 P.M.

ROYAL INSTITUTION.—3 P.M. The Rt. Hon. Lord Rayleigh: On Sound.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments)

THE LANCET Office, March 24th, 1887.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radia in Vacuo.	Max. Temp. Shade.	Min. Temp	Rain fall.	Remarks at 8.30 A.M.
Mar. 18	30·21	N.E.	32	...	77	42	29	...	Fine
,, 19	30·31	E.	32	...	64	42	30	...	Fine
,, 20	30·17	N.E.	34	33	67	39	32	...	Fine
,, 21	29·86	W.	33	32	58	47	31	...	Foggy
,, 22	29·41	W.	47	45	82	54	33	·05	Overcast
,, 23	29·04	W.	47	46	95	54	44	·20	Cloudy
,, 24	29·67	W.	45	42	...	...	39	...	Fine

Notes, Short Comments, & Answers to Correspondents.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

All communications relating to the editorial business of the journal must be addressed "To the Editors."

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news-paragraphs should be marked and addressed to the Sub-Editor.

Letters relating to the publication, sale, and advertising departments of THE LANCET *to be addressed "to the Publisher."*

We cannot undertake to return MSS. not used.

THE USE OF UNCOOKED MILK.

A CORRESPONDENT, referring to our recent comments concerning the danger of using uncooked milk, asks, with regard to the prevention of infectious diseases, what our views are as to cream, butter, and cheese. We have always regarded cream as a necessary constituent of milk, and we have again and again recorded outbreaks of infectious diseases as associated with the use of cream. The most recent was that which prevailed in connexion with the use of cream from a dairy in Shoreham, the cream being mainly consumed as an adjunct to strawberries. Cream, whether as the result of the mere mechanical process of its formation or otherwise, seems to have a special facility for embodying any injurious properties that may attach to the milk from which it rises. If milk which has not travelled by rail be boiled when delivered, a cream will later on form on its surface, to which no such danger attaches. As to butter, we are not aware that it has constituted a vehicle for the infection of the ordinary specific fevers. Although this subject cannot yet be regarded as having been exhaustively dealt with, yet in several outbreaks butter has, in common with other foods, been carefully inquired into, but without positive results. Whether the process of butter-making has to do with this or not cannot at present be stated. Much the same applies to the question of cheese; but, as we explained in our issue of March 5th, a distinct danger does attach to the use of certain cheeses, and this it probably connected with the quality of milk that is used in the process of manufacture.

Mr. W. Outhwaite.—We shall be pleased to hear "the other side" from our correspondent, but have not space for the verses. We freely admit that there is danger attached to all sports; but football is unfortunately distinguished by the number and severity of accidents and the roughness of the play.

Mr. W. Fraser (Ashburton).—The report has been received.

ERYSIPELAS AND VACCINATION.

To the Editors of THE LANCET.

SIRS,—Your article on the above subject suggests the desirability of treating the vaccine vesicles, when ruptured, with antiseptics. Is this done to any extent at the present time? Or are there any instructions on this point issued by the vaccination authorities?

I am, Sirs, your obedient servant,

March 19th, 1887. INQUIRER.

*** There are no instructions issued which relate especially to broken vesicles. There would obviously be some difficulty in the antiseptic treatment of poor children remaining in their own homes.—ED. L.

PROBABILITY OF LIVING AND OF DYING.

Mr. J. Niven (Oldham).—The communication has been referred to Mr. Noel A. Humphreys, the editor of Dr. Farr's "Vital Statistics," who agrees that the paragraph quoted involves an undoubted oversight, which appears to have arisen in the following way. In the paragraph in question Dr. Farr uses p to represent the "probability of *dying*," whereas this letter is almost invariably used only to represent the "probability of *living*," and in the formula given to express the relation of p and m the p has its usual signification, the "probability of *living*," instead of the unusual meaning attached to it in the preceding paragraph. The true difference between the rate of mortality (m) and the probability of *dying* may be expressed: $m - \frac{2m}{2+m} = \frac{m^2}{2+m}$, and this difference, as is explained in the paragraph, becomes less as m diminishes.

Old Subscriber.—The letters sent scarcely supply material for a judgment on the institution.

Mr. Harcourt (Belfast) should consult a surgeon.

DIPHTHERIA AND CROUP AS ENDEMIC DISEASES.

To the Editors of THE LANCET.

SIRS,—It seems surprising, with all the efficiency of the staff of medical officers of health, that no, or very little, progress has been made in hunting down contagious disease to its seed bed (endemic origin), particularly as so much progress has been made in tracing contagion—e.g., scarlatina, typhoid, diphtheria, &c.,—to milk or water. The Jennerian analysis has doubtlessly been more strictly applied to the latter than to the former. I have for many years held that diphtheria and croup had their "endemicity" in stables or stable manure. To this opinion I was led by the fact that the majority of patients whom I had to treat were either connected with or lived near stables—e.g., stablemen, cowmen, &c., and their families. So strongly did I hold this opinion that when the Princess Alice died I wrote suggesting that all the localities, &c., where the young princess, in whom the disease first declared itself, was likely to have visited should be found out, laying particular stress on any chance visit to stables. It has occurred to me to verify in a certain degree the truth of my opinion. Last year I had a hen set in my stables. She was perfectly isolated from the other chickens, though fed on similar food and water, for a period of about twelve days, when she was brought to me with a "stoppage in the throat." I examined her, and found that the fauces, &c., were covered with the usual white membrane of diphtheria. In detaching the membrane the surface oozed blood—in fact, there was no doubt in my mind as to the nature of the case. I treated it for a few days, mopping out the throat with a saturated solution of common salt (about the best germicide solution I know), and as she did not improve I had her killed. Since then I obtained a book on poultry, and in it I find that diphtheria and croup are diseases from which fowls suffer. Whence can the birds get the disease, except from their own surroundings—farmyards, stables, &c.? It is next to impossible that the disease could be imported amongst them, as they are generally quite isolated. I know nothing of veterinary science, and consequently am very diffident in expressing an opinion which I am inclined to hold—that glanders is diphtheria in the horse. If such be the case, it very much strengthens my contention that the disease is endemic in stables (of course, it may be endemic elsewhere). I am, Sirs, yours faithfully,

Long Ditton, March, 1887. HENRY GODRICH, B.A., 1st B.Sc. Lond.

MEDICAL MISSIONARY WORK IN BEIRUT.

THE physicians of the medical department of the Syrian Protestant College have been appointed by the Order of St. John in Berlin as the medical attendants of the Johanniter Hospital in Beirut. This admirable charity is served, too, by the deaconesses of Kaiserwerth, and has received during the past year 465 in-patients and 7126 patients treated in the polyclinique. Our readers may remember that the College is connected with the American Presbyterian Mission.

M.B., F.R.C.S.—Our correspondent's experience must be peculiar. For many hospital appointments the possession of the higher diploma is indispensable.

M. M.—There is no invariable rule.

H. M.—Yes. The blocks to illustrate the paper should be sent.

WORKMEN'S COLLECTIONS IN AID OF HOSPITALS.

To the Editors of THE LANCET.

SIRS,—The workpeople of our town are showing a desire to establish a "Saturday Collection" in aid of our infirmary. It is thought that information from other towns adopting similar weekly collections will contribute largely to the success of the movement. I am requested to assist in obtaining such details; and as the difficulties are great, I must appeal for assistance to those gentlemen who are attached to hospitals where this plan is in satisfactory operation to forward to me a copy of their report. Personally I shall esteem each report a great favour, and the good likely to result to an infirmary will in itself afford satisfaction.

I am, Sirs, yours obediently,

SAMUEL STRETTON,

March, 1887. Consulting Surgeon, Kidderminster Infirmary.

THE MOXON MEMORIAL FUND.

PRESIDENT: Sir William Jenner, Bart., K.C.B., M.D., F.R.S. The following contributions have been received since those announced on March 19th. All subscriptions should be forwarded to the Honorary Treasurer, R. Clement Lucas, B.S., F.R.C.S., 18, Finsbury-sq., E.C., by whom they will be acknowledged. Cheques should be crossed, "City Bank."

Fourth List.

Subscriptions announced	£497	4	6	J. Mitchell Bruce, M.D.	£1	1	0
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G. A. Wright, M.B., F.R.C.S.	1	1	0				

M. A. O.—The only guide to the examinations at the London College of Surgeons is that by Mr. Gant (fifth edition, 4s. 6d., Bailliere, Tyndall and Cox). Keetley's "Guide to the Medical Profession" would afford the desired information on the other points.

Mr. A. V. Dyer will find his question answered in the letter of our Paris correspondent, (p. 650.)

House-Surgeon will find the report in our present number.

THE INFLUENCE OF ALTITUDE ON PHTHISIS.

To the Editors of THE LANCET.

SIRS,—I notice in your issue of March 19th an article by Dr. Alcock, wherein a novel explanation is sought to be given of the benefit derived from high altitudes in the treatment of phthisis. His idea is ingenious, but his reasoning is fallacious; and, as a matter of fact, his explanation cannot be true. He endeavours to show that the particles of human blood have the same average rate of heat motion at St. Gothard that they would have had at the sea-level at a temperature of 104·8°; it is his arguments in support of this proposition that are unsound. His words are:—"It is already accepted that the only difference between the liquid and gaseous states is one of molecular motion. Consequently, if 199° of heat can make water boil at St. Gothard, it is apparent that this temperature can there produce an amount of molecular motion which not less than 212° could excite at the sea-level." In other words, because steam contains more molecular motion than water, therefore steam raised at all temperatures contains the same amount of molecular motion! Such is Dr. Alcock's argument. He now continues: "Further, as 199° is to 212°, so is 98·4° to 104·8°; therefore, the rate of motion to which a temperature of 98·4° would give rise at St. Gothard could only be attained at the sea-level as the result of a temperature of 104·8°." Here the condition of water at 98·4° and 104·8° is deduced from the condition of steam at 199° and 212°. But in spite of the fact that "the only difference between the liquid and gaseous states is that of molecular motion," Dr. Alcock has no more right to assume that the laws which apply to gases apply also to liquids than he has to assume that Boyle's law applies alike to water and steam. Again, he assumes equal rates of motion for proportional temperatures Fahrenheit. But why Fahrenheit? Why not Centigrade, or Réaumur, or any other scale? If there were any truth whatever in Dr. Alcock's assumptions, would not the use of the absolute temperature be the more likely to give correct results? But, as a matter of fact, neither are his assumptions true, nor, if they were, would his conclusions follow.—I am, Sirs, your obedient servant,

E. OSBORNE FOUNTAIN, B.A. Cant., M.R.C.S., L.R.C.P.

March 22nd, 1887.

THE CROYDON AND SURREY MEDICAL AID ASSOCIATION.

OUR attention has been called to the fact that circulars advertising this Association and its medical officers are distributed from house to house, and that weekly canvassers are employed. There seems, too, no wage limit to the admission of members. Yet we see appended to the circulars the names of many gentlemen who would not willingly be parties to anything undignified or unprofessional.

Mr. Geo. A. Craig, M.B.—The gentleman named died in March last year.

VIPER'S OIL.

To the Editors of THE LANCET.

SIRS,—I was lately consulted by a patient for gradually increasing deafness, for which she had tried various domestic remedies without success. Among others she mentioned, with some surprise at its failure, that she had "rubbed in viper's oil," procured for her by her friends, and that "they had been very particular, catching them themselves." I should be curious to know if any of your correspondents can give an account of the origin of this singular superstition. Does it arise from the passage of the "deaf adder that stoppeth her ears and refuseth to hear the voice of the charmer," on the idea of *similia similibus curantur*? I did not inquire as to the expense of the preparation, but it must be considerable, as the average viper would not, one would suppose, yield much oil under any method of treatment.

I am, Sirs, yours faithfully,

March 10th, 1887. CHATHAMITE.

THE QUEEN'S JUBILEE AND THE HOSPITALS.

ON this subject, *Mr. Ernest Dereuth*, Secretary to the City Orthopædic Hospital, writes:—"At the commencement of the year, I made similar attempts to those so kindly advocated by Dr. Slight, and your own journal, supported by a few well-known philanthropists, but the daily papers, although usually giving me a helping hand for my hospital, declined giving publicity to our letters and announcements till the consent of Her Majesty had been obtained. I shall be very pleased to afford the movement my utmost exertions, and would suggest that a body of gentlemen be formed as soon as possible as a preliminary committee."

Liverpool.—We do not give medical advice.

CASE OF CUT-THROAT.

To the Editors of THE LANCET.

SIRS,—The following report of a case of cut-throat may be worthy of a corner in your journal.

A few days ago I was called to a patient who had laid violent hands on himself. When I got to the house I found a man sitting on a bed bleeding profusely. I at once examined him, and found a wound which stretched across the throat, being placed between the thyroid cartilage and hyoid bone. The thyroid was fractured, due to his tearing it with his fingers. I at once placed a sponge wrung out of cold water over the wound, and sponged the blood. I repeated this as the blood continued to flow, but eventually the bleeding ceased. After half an hour another doctor came; but as the bleeding had abated he did not interfere. Two hours later the bleeding recommenced; so we sponged the part well, and found four small arteries from which blood spouted. These we ligatured with silk, and the bleeding was completely stopped. The next consideration was, should we sew the wound up? We agreed not to do so, being apprehensive of blood accumulating between the skin and opened larynx, and, by passing into the lungs, causing asphyxia or inflammation. The wound was therefore left completely open for two days. Two silver stitches were then placed near the sides of it, leaving an opening over the larynx, so that any discharge from it might have free drainage. I examined the pupils as soon as I arrived, and found them greatly contracted. The wound is now closed by silk stitches. It is sponged twice a day with tepid water, and then a clean piece of linen is placed over it. The patient takes a little tea and milk, and a pint of beef-tea has been administered by the stomach-pump. No bad symptom has as yet been noticed.

I am, Sirs, yours faithfully,

Bridlington Quay, March, 1887. G. NELSON, L.R.C.P., L.R.C.S., &c.

P.S.—Since the above was written the severed pharynx has nearly healed, which is proved by very little fluid coming through the external wound when the patient swallows any fluid. As far as I can make out, the fractured thyroid cartilage is also united, and there is now very little discharge through the external wound, which now only admits one finger. The urine is loaded with urates and a quantity of bile. The bowels cannot be made to act by enema; nevertheless, we shall, I think, effect a good cure.

NIGHTMARE.

To the Editors of THE LANCET.

SIRS,—I am much indebted to the correspondents who so kindly replied to my letter, especially to "R. W. W." for the prescription given. It has not had, I regret to say, the desired effect. The dreams, with irritable heart and weakened nerve force, continue. I may add that there is some history of gout and further signs of deranged nutrition in the urine being sometimes loaded with lithates, slight flatulence and inertia of liver. Heart sounds healthy, and no excesses. Change has not done any good and exercise is limited, as a slight amount excites the heart and causes fatigue. I am, Sirs, yours faithfully,

March 22nd, 1887. M.D.

To the Editors of THE LANCET.

SIRS,—In reply to the letter of your correspondent, "M.D.," in your issue of the 19th ult., I beg to suggest the following hints:—Diet chiefly meat, eggs, milk, cold bacon; no wine or spirits, but good stout; cod-liver oil; vigorous friction of entire chest with embrocation twice a day; strictly early hours; a month's holiday in June in such bracing upland air as that of Strathpeffer. These are to my mind essential points. If the liver be sluggish, short, brisk horse exercise before breakfast is invaluable. As a rule, I believe iron is better avoided.

I am, Sirs, yours truly,

March, 1887. F.

COLONIAL PRACTICE.

To the Editors of THE LANCET.

SIRS,—Will some of your readers kindly advise me? My wife is not strong, and I am told she must not winter in England again. I have no funds to send her to the south of France, &c., so have made up my mind to sell my practice and make a start in the colonies. Which is the best place to go to? I should prefer a good assistantship, and, if possible, one with view to partnership. I would be glad also to learn the name of the most reliable medical agent in Australia or New Zealand, to whom to write. Any information will be most thankfully and gratefully received. I am, Sirs, yours faithfully,

March, 1887. SPES.

THE M.R.C.S. DIPLOMA.

IN reply to a correspondent, whose letter has been mislaid, we have to state that a holder of the Membership of the Royal College of Surgeons has the right to append "M.R.C.S." to his name, and he only.

Furlough.—We do not think our correspondent sufficiently realises the necessity for individual convenience giving way to the exigencies of the service, nor do we approve of the manner in which he writes of the administrative officers of the department, who are certainly entitled to credit for their labours in investigating questions connected with the prevention and treatment of disease.

G.P.—The matter shall have attention.

Mr. R. W. H. Thomas.—We are unable to refer to any specific authority.

ANOSMIA.

To the Editors of THE LANCET.

SIRS,—I would feel extremely thankful if any of your numerous correspondents would kindly suggest some line of treatment that might assist me in a case I have at present. My patient, a gentleman aged thirty-four, has been for many years deprived completely of the sense of smelling; and is now a great sufferer from headaches (usually frontal), which is brought about without any apparent cause. Excitement of any kind induces it. I can find no history of syphilis, and he enjoys otherwise good health. He is very abstemious, and most careful in dieting himself. I find his breath is most offensive, which he says has been so for years.

I am, Sirs, yours faithfully,

March 23rd, 1887. CONSTANT READER.

GAS-BURNERS FOR THE CONSUMPTION OF SEWER GAS.

To the Editors of THE LANCET.

SIRS,—I observe in THE LANCET of last week a letter from Mr. Godrich, advocating the use of gas-burners for the combustion of sewer-gases. I beg to say that I have already constructed and patented an apparatus for this purpose, from a suggestion of Dr. Lowe, which acts perfectly. I shall be glad to show it in action to any member of the medical profession who may care to see it. I am, Sirs, your obedient servant,

Park-street, March 22nd, 1887. R. W. HELLYER.

BREAD-MAKING.

To the Editors of THE LANCET.

SIRS,—Could any of your readers inform me where I might obtain a pamphlet, written many years ago, on a method of preparing bread with carbonate of soda and muriatic acid very diluted. I know I ate some when in London many years ago, and I thought it healthy. I would be satisfied if I knew the quantities to be used.

I am, Sirs, yours respectfully,

Conway, N.W., March 21st, 1887. ROBERT JONES.

Student should make application to the Secretary of the College.

M.D. has not enclosed his card.

COMMUNICATIONS not noticed in our present number will receive attention in our next.

COMMUNICATIONS, LETTERS, &c., have been received from—Dr. Braxton Hicks, London; Dr. Macewen, Glasgow; Mr. Warrington Haward, London; Dr. O. Sturges, London; Mr. McGill, Leeds; Prof. Senn, Milwaukee; Sir R. Lechmere, London; Mr. Mandagnialdi, Colwyn Bay; Mr. Gant, London; Sir H. C. Perrott, London; Mr. Urban Pritchard, London; Mr. Jas. Turton, Brighton; Mr. A. M. Sheild, London; Mr. T. B. Young, Halesowen; Mr. P. E. Hill, Crickhowell; Dr. F. H. Alderson, London; Mr. Grant, Biantyre; Dr. J. W. Moore, Dublin; Mr. Handfield-Jones, London; Mr. G. Nelson, Bridlington Quay; Mr. E. D. Pedley, London; Mr. J. L. Stretton; Mr. Leighton Kesteven, Brisbane; Mr. A. V. Dyer, Clifton; Messrs. Burroughs and Wellcome, London; Dr. F. M. Pierce, Manchester; Messrs. Macewen and Co., Belfast; Mr. G. A. Craig, Birmingham; Messrs. Mottershead and Co., Manchester; Mr. R. Jones, Conway; Messrs. Whitfield and Co., Birmingham; Mr. J. A. Newbold, Manchester; Messrs. Smith and Son, Manchester; Mr. J. S. Buck, Bromley; Messrs. Keith and Co., Edinburgh; Mr. Gaye, London; Mr. Medwell, Christchurch, New Zealand; Dr. Broadbent, London; Mr. Dalton, London; Mr. Percy Dunn, London; Mons. G. Masson, Paris; Messrs. Oppenheimer and Co., London; Mr. Ashenden, London; Dr. Rason, Lytham; Mr. S. Stretton, Kidderminster; Dr. P. F. Frankland, London; Mr. Bawa Sengh, Punjaub; Mr. M. G. Evans, Cardiff; Messrs. Hopkinson and Co., Notts; Mr. Cardwell, London; Dr. F. Warner, London; Mr. J. Williams, Brentford; Dr. Gardner, Adelaide; Mr. R. W. H. Thomas, London; Dr. H. R. Bigelow, Berlin; Mr. Counsell, Bishearne; Mr. T. Jackson, Holbeach; Rev. G. H. Wright, London; Messrs. Sumner and Co., Liverpool; Mr. Hussey, Oxford; Mr. Moullin, London; Mr. E. W. Wallis, London; Mr. Smeaton, London; Dr. Lewins; Dr. Abraham, London; Dr. Brett, Watford; Mr. Hodgkin, London; Mr. Dereuth, London; Dr. Steeves, Liverpool; Dr. F. R. Adams, Cork; Mr. R. W. Hellyer, London; Dr. Elder, Nottingham; Mr. Easterbrook, London; Mr. V. G. Webb, London; Mr. F. W. Wright, Derby; Mr. Fountain, London; Mr. Blake, Crewkerne; Mr. Knott, Middlesbro'; Mr. Maw, London; Mr. Brown, Westgate-on-Sea; Mr. J. H. Balfe; Mr. Oakwell, Notts; Dr. Craddock, Gloucester; Dr. Macartie, Bombay; Miss Sykes, Hamilton; Dr. Gabb, Cheltenham; Mr. Grattan, Cork; Mr. Ricker, St. Petersburg; Mr. Jennings, London; Mr. Tresise; Mr. Ashworth, Halstead; Mr. Tillet, Dudley; Mrs. Chambers, Everleigh; Mr. Ryan, London; Mr. Kershaw, Luton; Mr. Beckton, London; Mr. W. G. Bunn, London; Mr. Hartshorne, London; Mr. Mundy, Hampstead; Messrs. Reynolds and Co., Leeds; Mr. Armstrong, Manchester; Mr. Jacob, Basingstoke; Constant Reader; H. M.; M.D. 1886; L.S.A.; F.; Inquirer; M.D.; Furlough; M.B., F.R.C.S. Eng.; Only an M.B.; Resident Physician, Southsea; Surgeon, Birkenhead; Old Practitioner.

LETTERS, *each with a enclosure*, are also acknowledged from—Dr. Saul, Lancaster; Mr. Lewis, London; Mr. Coltman, Leicester; Mr. Carp, Notts; Mrs. Terrell, Hertford; Dr. Waller, Peterboro'; Mrs. Northrop, London; Mr. Lyle, Dalston; Mr. Townsend, Exeter; Messrs. Beal and Son, Brighton; Mrs. Hitch, St. Leonards-on-Sea; Messrs. Street and Sons, Guildford; Mr. Edmunds, Chesterfield; Mr. Birchall, Liverpool; Dr. Lindsay, Belfast; Mr. Fowler, Wakefield; Mr. Westwood, Stratton; Dr. Brown, Puckeridge; Mr. Webb, Epsom; Mr. Keely, Notts; Mr. Langley, Notts; Mr. Hornibrook, London; Miss Barlow, Colwyn; Dr. Hall, Prescott; Dr. D'Estrée, Paris; Dr. Combe, North Walsham; Dr. Newman, Audlem; Dr. Stack, Spalding; Mr. Kirby, Whitechapel; Mr. Dumville, St. Alban's; Mr. Thomas; Mr. Brymer, Summerton; Mr. Affleck, Manchester; Mr. Boyveau; Mr. Saunders, Camden-town; Dr. McGill, Poplar; Mr. Rideal, London; Dr. Gurney, Finsbury; Mr. Bacher, Birkenhead; Mr. Brooks, Ludlow; Dr. Benthall, Southsea; Mrs. Moore, Coventry; Mr. Grimyer, Bow; Mr. Stevens, Notting-hill; Mr. Thornton, Margate; Mrs. Chambers; Mr. Johnson, Sheffield; Mr. Gimblett, Peckham; Miss Carson, Burton-on-Trent; Commercial, Exeter; S. S.; J. A. M., Wakefield; Bruce; Medicus, Camden-town; H. W.; Hallebury; Medicus, Bristol; T. H.; Lady Superintendent, St. John's-wood; Steward, Plumstead.

Western Mail, South Wales Daily News, Echo, Hospital Gazette, Norwich Mercury, Gloucester Chronicle, Orilla Packet, Eastern Morning News, City Press, &c., have been received.

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